

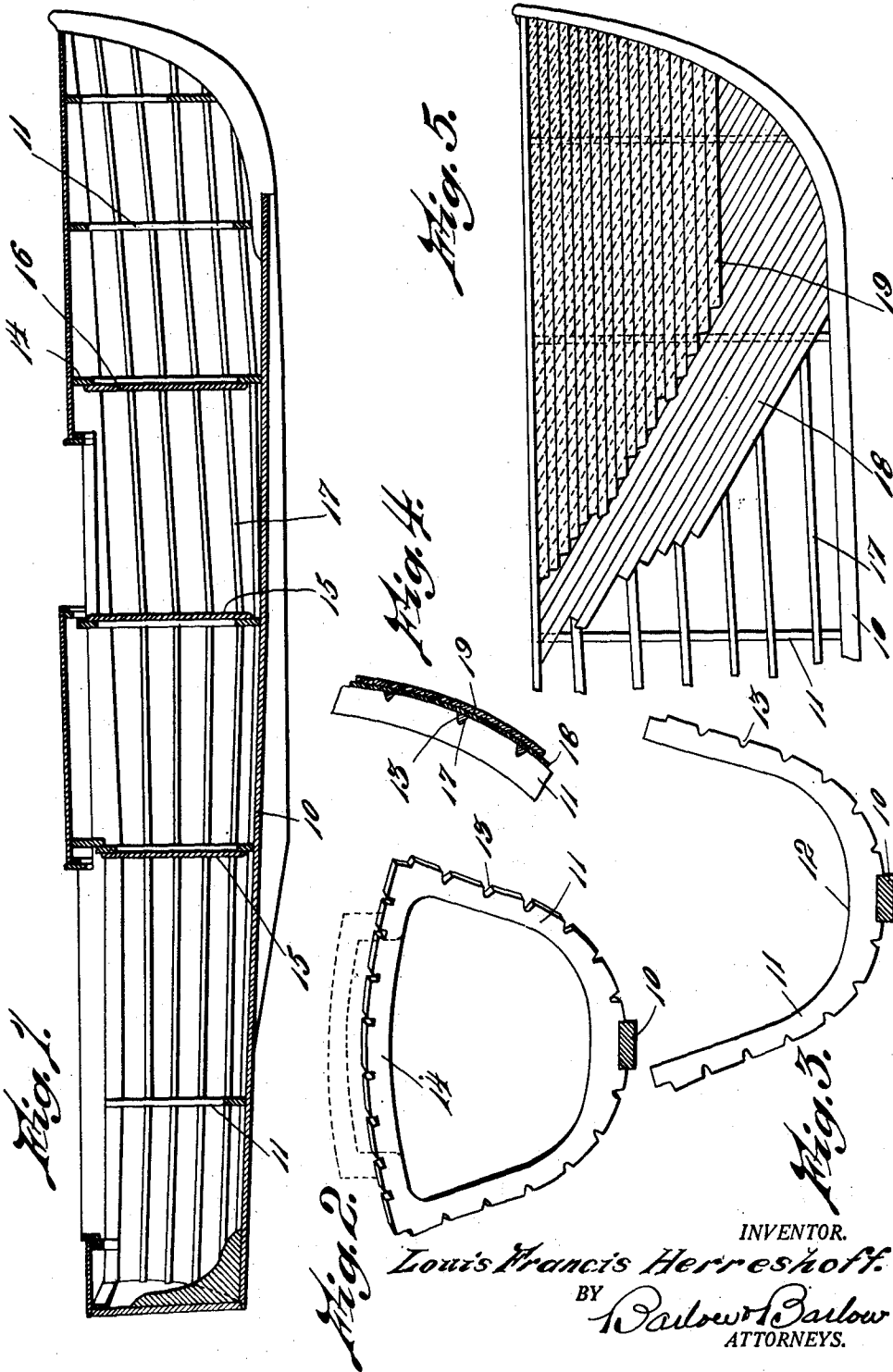
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BOAT

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UNITED STATES PATENT OFFICE.

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BOAT.

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This invention relates to an improved boat construction; and has for its object to provide a boat construction that is very strong and durable and yet light in weight and one that will not weave, wring or twist but will retain its original shape even when subjected to the great strains of being driven at high speed thru a heavy seaway.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a sectional side elevation showing the widely spaced frames with the stringers running lengthways of the boat and mortised into the outside edges of these frames.

Fig. 2 is a detail showing one of the continuous frame members having a bridge portion connecting the upper ends of the frame and formed to extend across the keel to be supported thereon.

Fig. 3 shows one of the U-shaped frames omitting the bridge member and continuous from end to end to extend across the keel and be supported thereon.

Fig. 4 is a fragmental section showing a portion of one of the frames with the stringers in section and mortised into the outside edge of the frame and two thin skins of planking outside of the stringers, one set diagonally to the other.

Fig. 5 shows the inner skin of planking as set diagonally to the stringers and the frame members, and the outer skin of planking as running lengthways of the boat over the diagonal planking.

In the old style boat construction relatively small and closely spaced ribs were used and arranged in pairs with their lower adjacent ends abutting the keel, these ribs being tied together by planking running fore and aft to form the hull and such construction particularly in the fast traveling, lightly built boats permitted the hull to weave, wring and twist in a seaway to such an extent that the fastenings would soon become loosened, the boat would leak and its usefulness quickly impaired. To obviate this difficulty, I have developed a new construction of boat in which a set of relatively thin and deep frames are employed each to extend in a continuous piece across the keel and I space these frames apart along the

length of the boat and preferably set them where the partitions and bulkheads are located so as not to be in the way. These spaced frames are rigidly connected together on each side of the hull by a set of relatively closely spaced longitudinally disposed stringers which are mortised into the outer edges of these frames and by which arrangement the lightest construction known for its weight is produced, and in order to obtain a further stiffening effect I lay a thin skin of diagonally disposed planking to cross both the stringers and the frames on an incline, which serves to rigidly tie the whole together and prevents the boat from hogging and also from weaving and twisting and to still further stiffen the boat I lay an outer skin of planking running fore and aft of the boat which in some instances may be glued to the inner skin and may also be otherwise fastened to the stringers and frames, and also in some portions of the boat I may form some of the frames with a bridge member extending across between the upper ends of the otherwise U-shaped frames which also again assists in strengthening the structure; and the following is a detailed description of the present embodiment of my invention and showing one construction by which these advantageous results may be accomplished:

With reference to the drawings, 10 designates the keel which extends centrally along the length of the boat and 11 the frame members some of which are made in U-shape as illustrated in Fig. 3, being formed as a unit to extend as at 12 across the keel and be supported thereon. These frames are very narrow in width and of considerable depth which permits them to offer the greatest resisting strength in the direction of greatest strain. The outer edges of these frames are provided with spaced notches as at 13 for the purpose presently described.

Some of the frames are formed with a continuous outline such as illustrated in Fig. 2, the ends of the U being connected by a cross bar on bridge 14, as illustrated in either the full or dotted lines in Fig. 2, to lend greater strength and stiffness thereto.

These frames are wide spaced apart along the length of the boat, being preferably positioned where the bulkheads 15 and the partitions 16 are located in the boat. In this way, these deep frames are not in the way

and are not seen from the inside of the boat.

Narrow strips of material forming stringers 17 are arranged to extend lengthwise of the boat and are shaped to fit into the notches 13 formed in the edges of the frames to lie flush with the outer edges of these frames.

These stringers are spaced apart all around the sides and bottom of the boat and by being mortised into the recesses into the edges of the frame firmly lock these frames together and lend great stiffness to the boat.

The thin inner skin of planking 18 is arranged to set diagonally across the stringers and frames to cooperate therewith and to greatly stiffen the boat and prevent it from hogging, and over this skin of diagonal planking I position a thin skin of longitudinal planking 19 which is usually glued to the inner skin and may be also otherwise fastened to the inner skin, the stringers and the frames.

By my improved construction of frames and stringers and diagonal planking, I have obtained a boat which is extremely light in weight and of great strength which well adapts it to firmly resist the hogging, wringing and weaving and twisting strains due to being forced at high speed thru a heavy seaway.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A boat construction comprising a keel, a set of permanently located wooden frames having their lower portions formed to extend across the keel to be supported thereon in widely spaced relation along the length of the boat, the depth of the frame members being materially greater than their width, a multiplicity of relatively narrowly spaced longitudinally disposed wooden stringers

substantially equally spaced all the way between the keel and gunwale and mortised into the outer edges of said frames with their outer faces flush therewith, a skin of planking diagonally disposed fastened directly to the frames and stringers respectively, and an outer skin of planking fastened directly to said first skin.

2. A boat construction comprising a keel, a set of wooden frames, each formed with its lower portion extending across the keel and supported in widely spaced relation along the keel to take the place of ribs, the depth of the frames being materially greater than their width, said frames being provided with spaced notches along their edges, a multiplicity of wooden stringers relatively narrow and substantially equally spaced all the way between the keel and gunwale and extending along the length of the boat and fastened in said frame notches to lie substantially flush with the edge of said frames, and a skin of diagonally disposed planking fastened directly to said frames and stringers, respectively.

3. A boat construction comprising a keel, a set of wooden frames each formed with its lower portion extending across the keel and supported in widely spaced relation along the keel to take the place of ribs, the depth of the frames being materially greater than their width some of the frames being substantially U-shape and some having a stiffening bridge member connecting their upper ends, said frames being provided with spaced notches along their edges, a multiplicity of wooden stringers set at closely spaced and substantially equally spaced all the way between the keel and gunwale and extending along the length of the boat and fastened in said frame notches flush with the edges of said frames, an inner skin of diagonally-disposed planking fastened to said stringers, and an outer skin of longitudinally-disposed planking fastened directly to said inner skin.

In testimony whereof I affix my signature.
LEWIS FRANCIS HERRESHOFF.