Feb. 21, 1933. A. E. HELJESSON 1,898,876

BOAT

Original Filed July 3, 1930 3 Sheets-Sheet 1

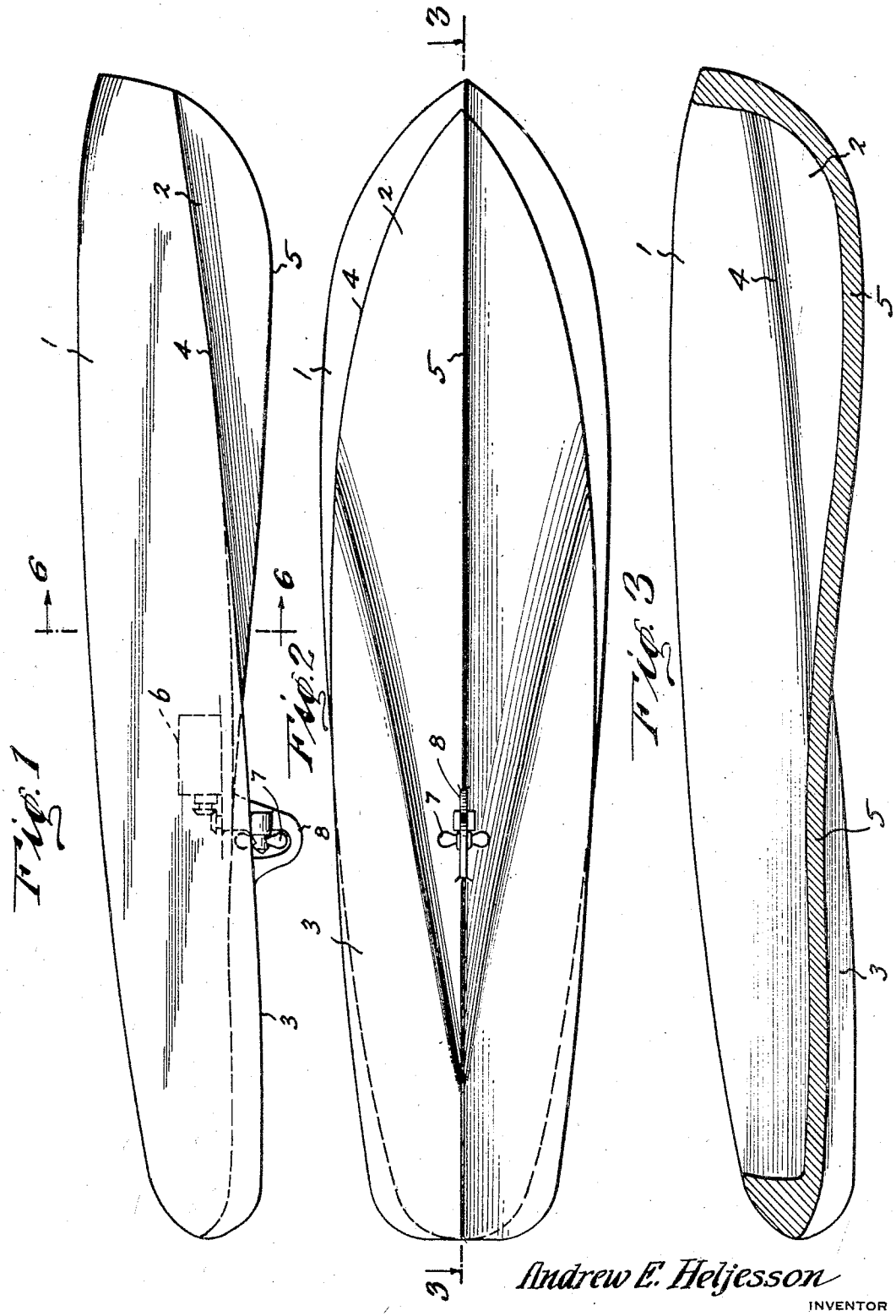

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Fig. 6

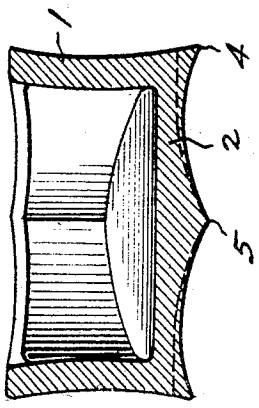

Fig. 5

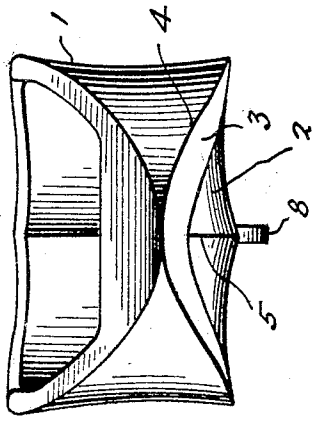

Fig. 4

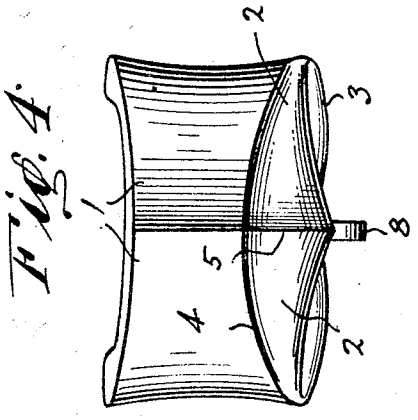

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Fig. 7

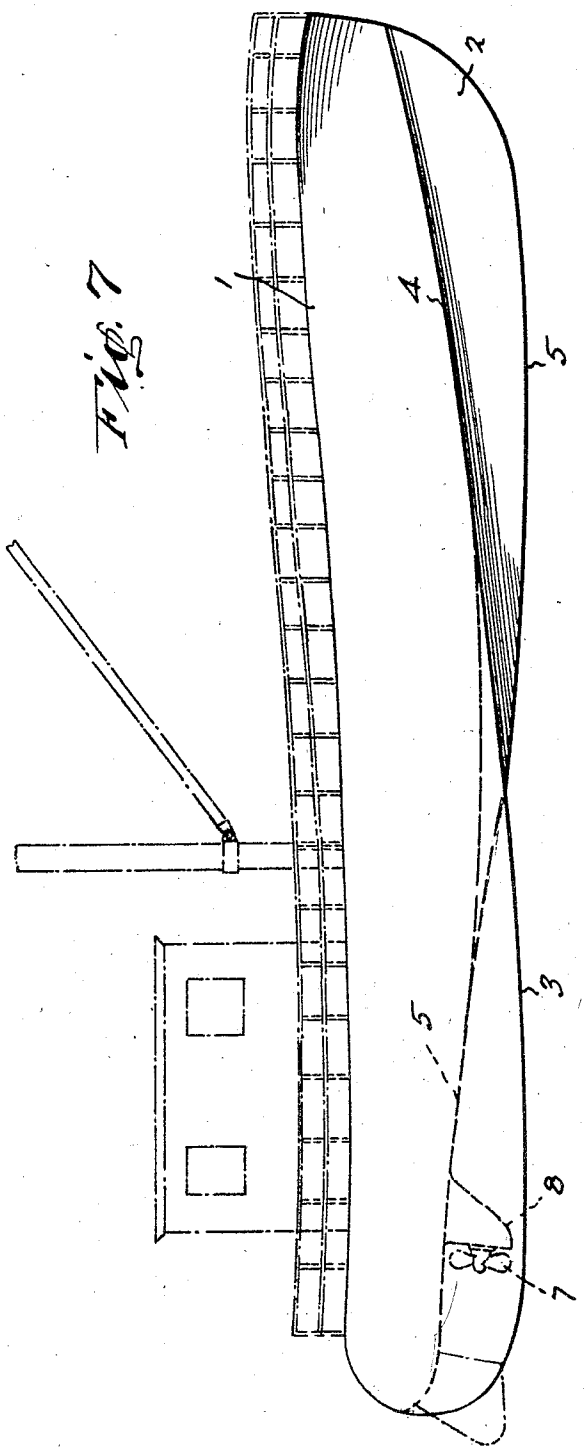
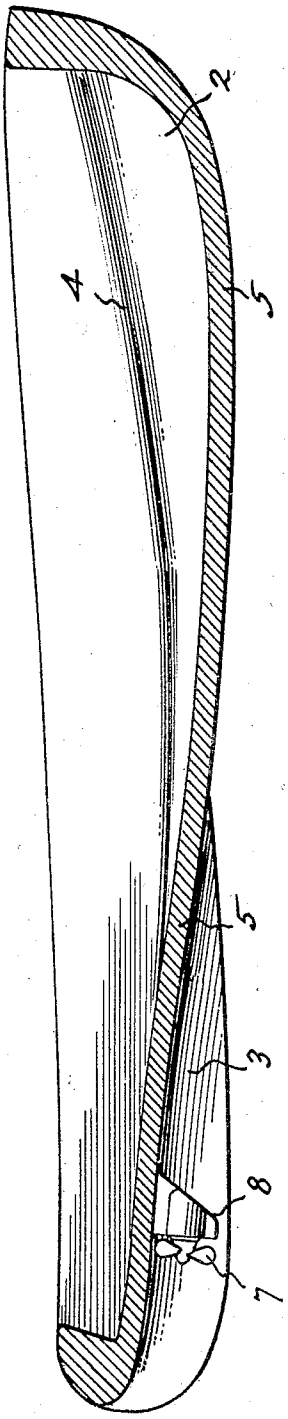


Fig. 8



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Patented Feb. 21, 1933 1,898,876

UNITED STATES PATENT OFFICE

ANDREW E. HELJESSON, OF BROOKLYN, NEW YORK

BOAT

Application filed July 3, 1930, Serial No. 467,427. Renewed April 12, 1932.

This invention relates to an improvement in boat hulls and has as one of its objects to so form the hull of a boat as to greatly minimize its rear end resistance, and the invention therefore, in one embodiment thereof, is exceptionally well adapted for embodiment in speed boats, while, in another embodiment, by a slight change from the first mentioned embodiment, the hull will be so shaped as to form ample protection for the propeller both affoat and aground, and the hull will be more properly suited for work-boats or boats employed in transporting cargoes.

It is a prime and basic object of the present invention to construct the hull of a boat or ship with a centre section which will be stream-lined and with a concave stern. Its main feature, the stream-lined center section, being formed between the deck and a rising keel line, to be sharp or blunt according to the speed design of the vessel.

Another object of the invention is to provide a boat hull so constructed and formed that the boat may be propelled rearwardly, or in other words, stern first, with substantially the same facility as it is driven forwardly.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims, it being understood of course that minor changes may be made so long as they fall within the scope of the claims.

In describing my invention in detail, reference will be had to the accompanying drawings, wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a view in side elevation of a boat hull designed especially for speed boats and constructed in accordance with the invention.

Figure 2 is a bottom plan view thereof.

Figure 3 is a vertical longitudinal sectional view taken on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Figure 4 is a view in front elevation of the hull shown in Figures 1, 2 and 3.

Figure 5 is a rear elevation of the hull.

Figure 6 is a vertical transverse sectional view taken on the line 6—6 of Figure 1, looking in the direction indicated by the arrows.

Figure 7 is a view similar to Figure 1, illustrating the invention embodied in a boat for carrying cargoes or a work boat.

Figure 8 is a view similar to Figure 3, illustrating the shape of the hull of the boat of the embodiment shown in Figure 7.

In the embodiment of the invention shown in Figures 1 to 6, inclusive, the sides of the hull are indicated by the numeral 1 and the fore-part of the bottom of the hull by the numeral 2, and the rear or stern part of the bottom by the numeral 3. The chines defining the division lines between the sides and bottom are indicated by the numeral 4, and these chines, as will be observed by reference to Figures 1 and 2 of the drawings, curve upwardly and inwardly and meet at the extreme rear end to help form a rounded concave stern.

The keel line of the hull, indicated by the numeral 5, is best shown in Figures 1 and 3 of the drawings elevated at the rear half in comparison to chines and deck, said keel line being convexly curved along the fore-part of the bottom of the hull and concavely curved along the stern part of the hull and again convexly curved at extreme rear end where it converges toward and meets the top of the hull to form the stream-lined centre section between the deck and said keel line, the rear end of the top of the hull being also longitudinally convexly curved to meet the keel line. As shown in Figure 2 of drawings, the sides of the hull, at the extreme rear end, are convexly curved and converge toward each other and meet and form a rounded stern, the sides of the hull at the fore-part being longitudinally convexly curved and vertically concavely curved to form a "flare" bow, as in all modern fast boats. By reference to Figures 4 and 6 of the drawings, it

will be observed that the bottom of the greater part of the hull is transversely concavely curved at opposite sides of the keel line 5, but as shown in Figure 5, transversely convexly curved on oposite sides of said keel line at the extreme rear end, where deck, keel line and sides converge toward each other, and it will be appreciated by reference to Figures 1, 2 and 3 of the drawings, that the bottom of the hull along the stern part thereof is considerably elevated at its keel line as compared with the bottom along the fore-part of the hull, and as compared with the bottom along the sides of chines at the rear, and that the keel line 5 merges, as shown in Figure 5 of the drawings, with the bottom of the hull somewhat short of its stern end, this being also evident by reference to Figure 2 of the drawings. Shaded diagonals shown in Figure 2 of the drawings indicate location of deepest part of transverse concavities on each side of keel line 5.

In short: A hull, in which the improvement, as compared with conventionally shaped boats, consists mainly in forming a stream-lined fore-and-aft vertical centre plane between the deck and a rising keel line, the same stream-lined centre being substantially the cause and reason for the peculiar shape of the boat. A boat having a rounded stern with a rear concavity caused by its rising keel line and stream-lined centre, said rear concavity extending and converging to, and ending at substantially the point where deck, keel line, bottom and sides converge and meet.

The motor for the boat is indicated in general in Figure 1, by the numeral 6, and is shown merely in dotted lines inasmuch as it is only required to indicated the relative location of the propeller for the hull, which propeller is indicated by the numeral 7 and is mounted in a suitable frame 8 upon the under side of the hull in the plane of the keel line to show that this hull-design is suitable for a slightly different and more economical propeller thrust.

Where the hull is to be embodied in the construction of a tug boat or cargo carrier, the hull is, as shown in Figures 7 and 8, of approximately the same general contour as in the previously described embodiment of the invention, except that the propeller is not located as described in connection with the first embodiment but nearer the end of the stern, and therefore more completely housed within the concave under side of the stern part of the hull bottom, and, in this embodiment, the deck of the hull is somewhat elevated as will be evident by a comparison of Figures 3 and 8, and likewise the concavity in the bottom of the stern part of the hull is somewhat modified inasmuch as it is more elevated or tapered than the concavity in the hull of the first described embodiment, and the stern of the hull shown in Figures 7 and 8, is also somewhat more blunt than the stern of the first described embodiment.

Due to its central stream-lining and its peculiar concave stern, which is stream-lined in the centre, it will be evident that rear end suction or resistance is greatly eliminated without loss of stability and that this boat can be backed, that is, propelled or driven with its stern end foremost with great facility.

What I claim is:

1. A boat comprising a hull having sides and having a keel line rising from a point in the forepart of the keel to the rear end of the boat, the rear end of the keel line and the rear end of the upper surface of the hull converging toward each other and meeting and forming a stream-lined centre, the rear ends of the sides being curved and converging toward each other and meeting substantially at the same point as the keel line and the upper surface of the hull and forming a rounded stern which is stream-lined in the centre; and having a rear concavity produced by the converging and meeting of the rising keel line and upper surface of the hull, whereby to produce a boat with three point glide and easy slip.

2. A boat comprising a hull having sides and having a keel line rising from a point in the forepart of the keel to the rear end of the boat, the rear ends of keel line and upper surface of the hull being curved and converging toward each other and meeting and forming a stream-lined centre, the rear ends of the sides being curved and converging toward each other and meeting at the same point as the keel line and upper surface of the hull and having a rear concavity formed by the meeting of the rising keel line and upper surface of the hull, the bottom of the hull being transversely concave on opposite sides of the rising keel line, but longitudinally convex on opposite sides of said keel line adjacent to where the keel line, top of the hull sides and bottom meet to form a concave stern which is stream-lined in the centre to produce easy slip without loss of stability.

In testimony whereof I affix my signature.

ANDREW E. HELJESSON.