June 23, 1936. M. D. CARR, JR 2,044,771

BOAT CONSTRUCTION

Filed Sept. 11, 1934 2 Sheets-Sheet 1

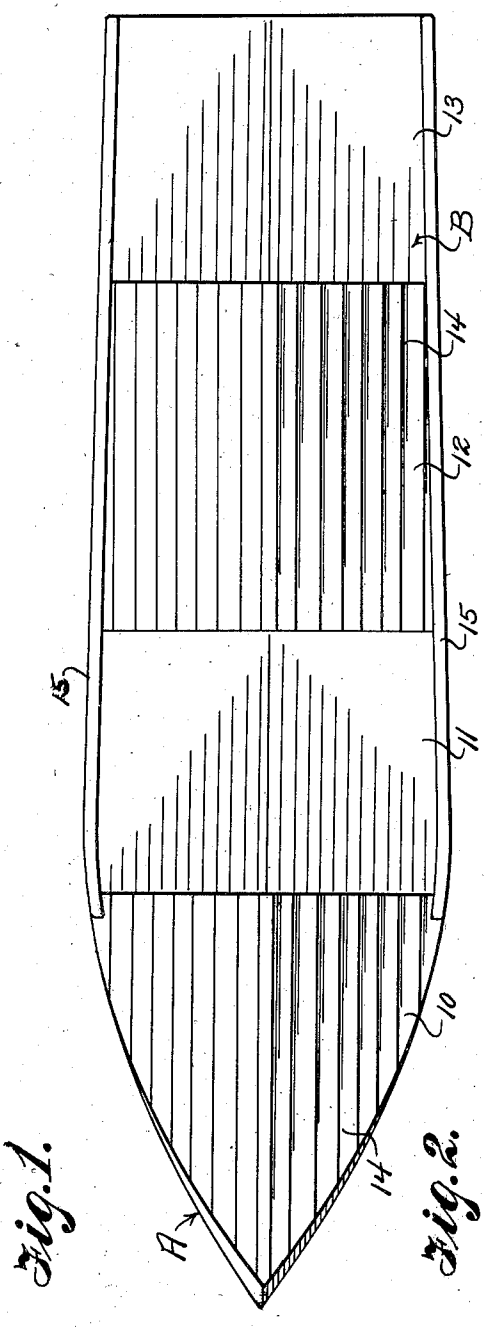


Fig. 1.

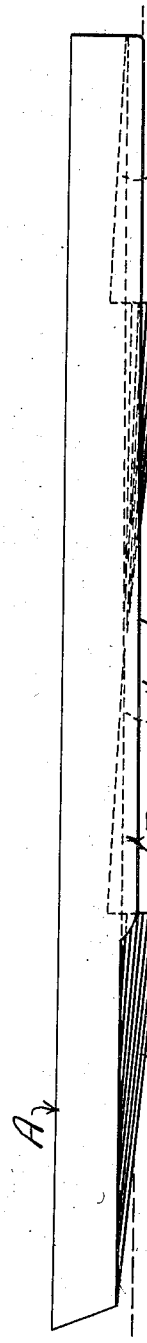


Fig. 2.

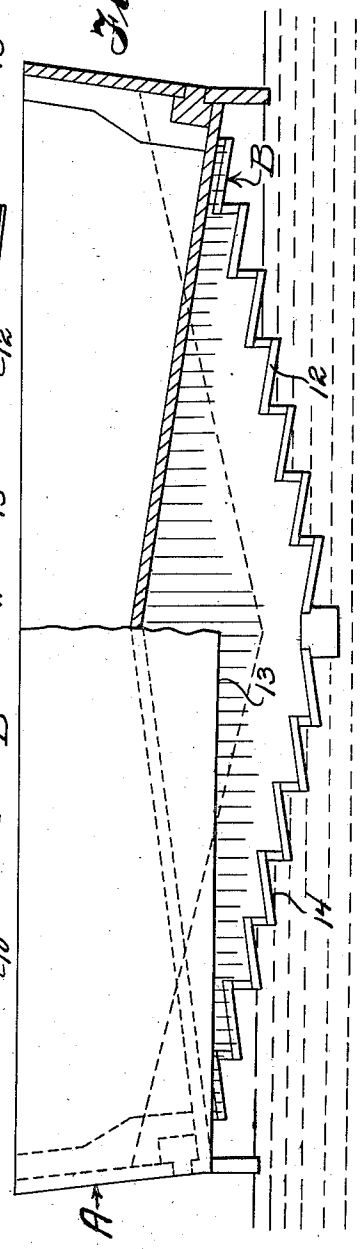


Fig. 3.

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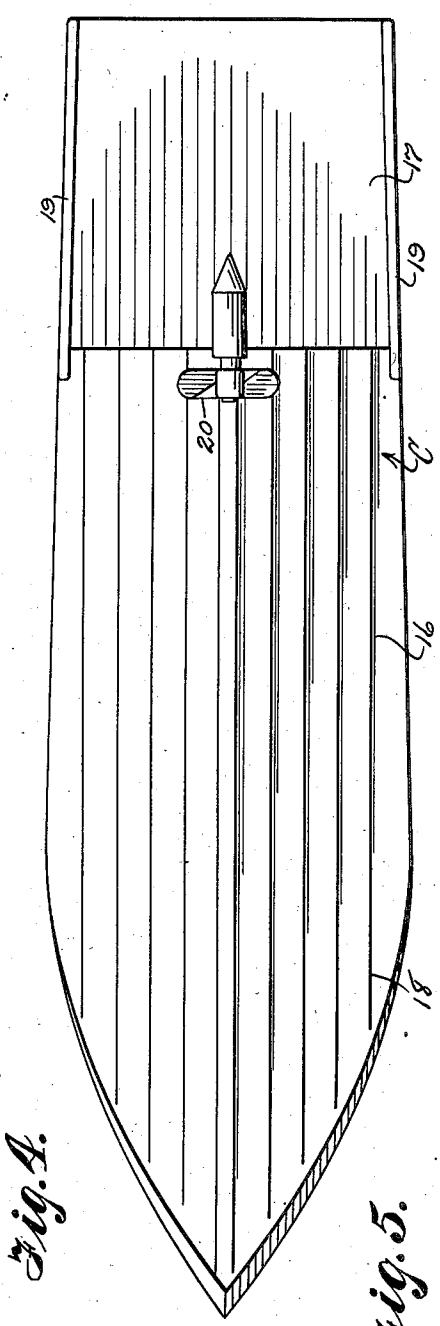


Fig. 4.

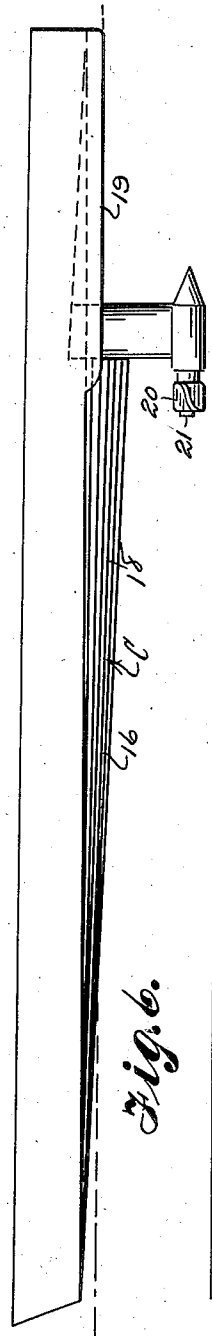


Fig. 5.

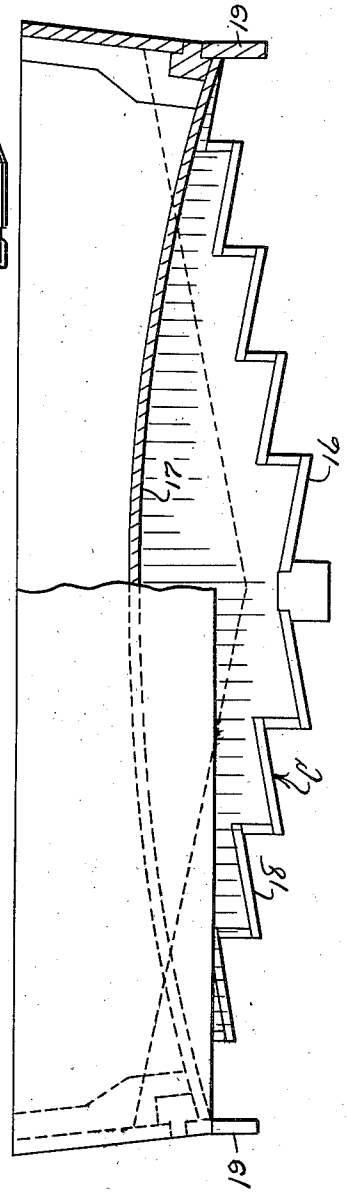


Fig. 6.

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Patented June 23, 1936 2,044,771

UNITED STATES PATENT OFFICE

2,044,771

BOAT CONSTRUCTION

Milton D. Carr, Jr., Miami, Fla.

Application September 11, 1934, Serial No. 743,600

3 Claims. (Cl. 114—66.5)

The invention relates to a boat construction and more especially to a boat bottom.

The primary object of the invention is the provision of a bottom of this character, wherein there are arranged planing surfaces, these being peculiarly disposed so that the bottom will present a flat bow terminating in a deep V at some point toward the stern, then a reverse V raising toward the stern, while longitudinal steps are provided having inclines directed upwardly and inwardly toward the keel and the V and reverse V formations are the center of gravity and buoyancy, the reverse formation functioning as an air compression chamber, compressing the air that is sucked into it by partial vacuum created by the V formation as the boat moves forward, so that stabilization is assured and water resistance relieved to a minimum. Thus a boat level is had and the stern of the said boat will be prevented from squatting or dragging through the water, while bow waves are eliminated.

Another object of the invention is the provision of a bottom of this character, wherein the travel of the boat will be smooth and maximum speed may be attained with a minimum of water resistance and automatic stabilizing assured, the faster the travel of the boat the greater the air compression and thus sustaining the boat from stern squatting or dragging, and since there are no bow waves the chine line becomes the water line and the displaced water at the keel falls diagonally toward the chine, thus compressing air and maintaining buoyancy at a center of gravity.

A further object of the invention is the provision of a bottom of this character which is simple in its construction, novel in form, reliable and efficient in the functioning thereof, and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a bottom plan view of a boat bottom constructed in accordance with the invention.

Figure 2 is a side elevation thereof.

Figure 3 is a view looking toward the stern and the hull or body of the boat being partly in section.

Figure 4 is a bottom plan view of a modified form of boat bottom.

Figure 5 is a side elevation thereof.

Figure 6 is a view looking toward the stern, the same being partly in section and partly broken away.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, particularly Figures 1 to 3 inclusive, there is shown the preferred embodiment of the invention and the boat hull or body is designated generally at A, while the bottom B is the present invention and will be hereinafter fully described.

The bottom B has starting at the bow flat and terminating at the stern flat the alternately arranged V and reverse V formation areas 10, 11, 12 and 13, respectively, while built in the areas 10 and 12 are the longitudinal steps 14, each step having an incline upward from the front edge to the back edge or a tilt up toward the keel. On each side of the boat chine from a slight distance forwardly of the reverse V formation area 11 to the stern is an air retainer 15, this being extended down below the bottom of the chine. The V formation area 10 is gradually inclined in a rearward direction and likewise the area 12 is gradually inclined in a rearward direction, while the reverse V formation areas 11 and 13 are inclined toward the stern and provide air domes immediately rearwardly of the areas 10 and 12. Thus it will be seen that on the forward travel of the boat, at the rear end of each area 10 and 12 and at the beginning of the areas 11 and 13, a suction is created, causing air to be deposited in the air domes constituted by the areas 11 and 13, the air being caught between the hull and the water, the bow of the hull being caused to rise out of the water during the forward propelling of the boat and at the area 10 the air caught between the hull and the water is conveyed by the steps 14 toward the stern, this causing a partial air action between the areas 10 and 12 and the water and such air in the air domes prevents the water from escaping on either side of the boat, this being effected by the air retainers 15. It should be apparent that the air from the front of the boat having filled the area 11, and as the ceiling of the air dome or the forward area 11 inclines downwardly toward the stern, the faster the boat travels the greater the air is compressed in said air dome and thus causing the stern to ride on compressed air which exists between the bottom of the boat and the water.

In Figures 4, 5 and 6 of the drawings there is shown a slight modification, wherein the bottom

C has a V area 16 starting at the bow flat and terminating in a deep V about approximately three-fourths of the length of the hull from the bow, then a reverse V formation area 17 terminating at the stern flat. In this V formation area 16 there are built longitudinal steps 18, each step having an incline upward from the front edge to the back edge or a tilt upward toward the keel, while on each side chine starting slightly forwardly of the reverse V formation area 17 is an air retainer 19, this terminating at the stern and extending down below the bottom of the chine.

It is, of course, understood that the area 16 is gradually inclined in a rearward direction and likewise the area 17 is gradually inclined toward the stern and this area constitutes an air dome.

Arranged midship is a pull propeller 20 having its power shaft 21 horizontally disposed and located considerably below the bottom of the boat, so that the propeller 20 when driven will clear the said bottom and thus work in undisturbed water, which gives maximum efficiency in the driving of the boat.

It should be apparent that by reason of the construction of the bottom of the boat the said bottom is riding on aerated water, which reduces water resistance to the minimum and the only limit to the boat's speed is the revolutions and pitch of the propeller. In a rough sea, the risers of the steps 14 and 18 act as shock absorbers and thus pound in the sea in a shearing motion, with the result of stabilization to the boat to eliminate sidewise drift, particularly in a side wind, and materially increases the strength of the boat bottom.

When the boat is in motion at the areas 11, 13 and 17, respectively, the said areas are never void of air and the faster the boat travels the more the air is compressed, with the result that the stern will be carried high without a squatting or dragging action at this point. The entire boat will be held on top of the water, it at no time going through the water, but gliding on the top. The boat is susceptible, by reason of the bottom formation, of turning in a small circle and is stabilized at all speeds and in a rough sea, and particularly at high speed, it being assured of level and easy riding, free from bumps and vibrations.

The propeller shaft 21 is operated through connection with any suitable source of power.

The boat with the bottom construction is susceptible of maximum speed of travel, more seaworthy, possessed of greater carrying capacity, shallow drift and is susceptible of being run at high speed through a narrow channel or stream and pulls no swell and throws no side waves, it gliding over the top of the water instead of plowing through the same. The boat can be held in its course in heavy side currents or side winds and in shallow drift will be steady, and without danger of ground running.

What is claimed is:

1. In a boat construction, a bow end bottom having V formation and inclined rearwardly, a stern end bottom of upwardly arched formation and inclined rearwardly to provide throughout the same an air dome immediately in rear of the V shaped formation, the upwardly arched formation being inset within the body of the boat to be disposed elevated with respect to the plane of the V formation and wholly within the body and means disposed at opposite longer edges of the bottom and extending slightly forwardly of the upwardly arched formation and terminating at the stern end for providing air retainers at the air dome.

2. In a boat construction, a bow end bottom having V formation and inclined rearwardly, a stern end bottom of upwardly arched formation and inclined rearwardly to provide throughout the same an air dome immediately in rear of the V shaped formation, the upwardly arched formation being inset within the body of the boat to be disposed elevated with respect to the plane of the V formation and wholly within the body, means disposed at opposite longer edges of the bottom and extending slightly forwardly of the upwardly arched formation and terminating at the stern end for providing air retainers at the air dome and steps at the V formation and inclined in the direction of a keel and having perpendicular risers.

3. In a boat construction, a bow end bottom having V formation and inclined rearwardly, a stern end bottom of upwardly arched formation and inclined rearwardly to provide throughout the same an air dome immediately in rear of the V shaped formation, the upwardly arched formation being inset within the body of the boat to be disposed elevated with respect to the plane of the V formation and wholly within the body, means disposed at opposite longer edges of the bottom and extending slightly forwardly of the upwardly arched formation and terminating at the stern end for providing air retainers at the air dome, steps at the V formation and inclined in the direction of a keel and having perpendicular risers and a propeller depending midship and operating fore of the air dome.

MILTON D. CARR, JR.