Dec. 20, 1960 R. P. BANK ET AL 2,965,061

BOAT HULL

Filed Sept. 14, 1959 2 Sheets-Sheet 1

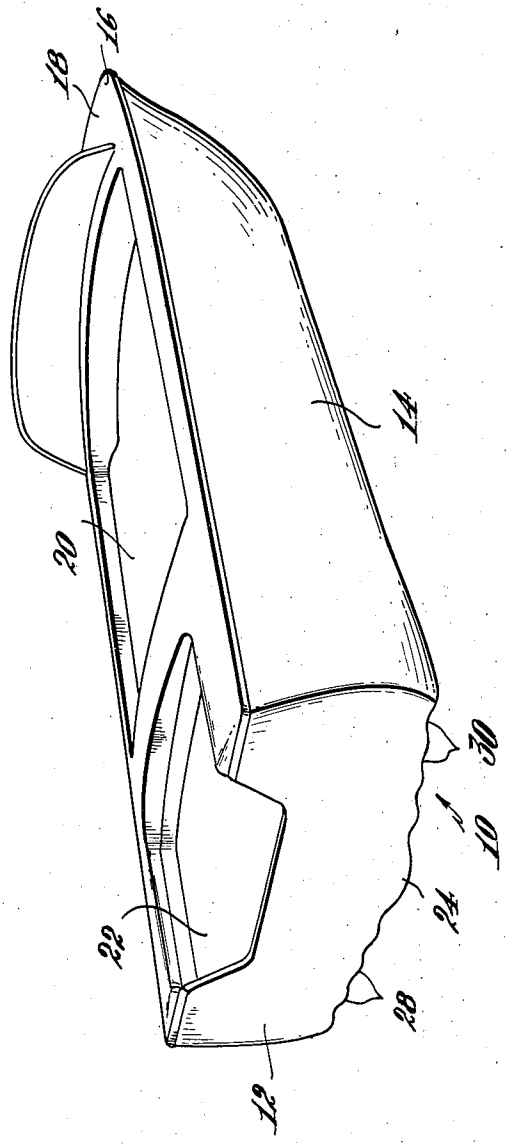


Fig. 1

INVENTORS
Richard P. Bank
Charles P. Jacobs
BY Roberts, Cushman & Grover
ATTYS

Dec. 20, 1960 R. P. BANK ET AL 2,965,061

BOAT HULL

Filed Sept. 14, 1959 2 Sheets-Sheet 2

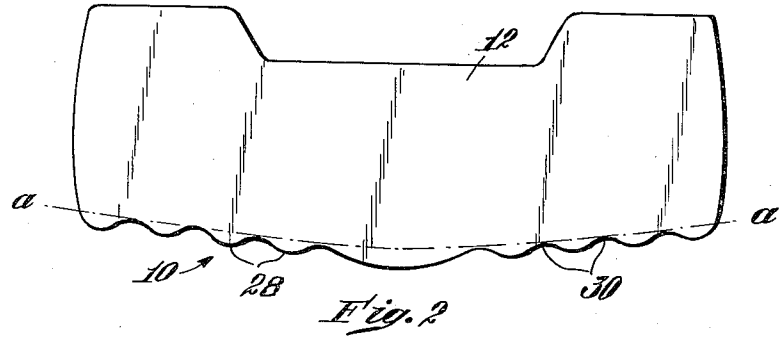


Fig. 2

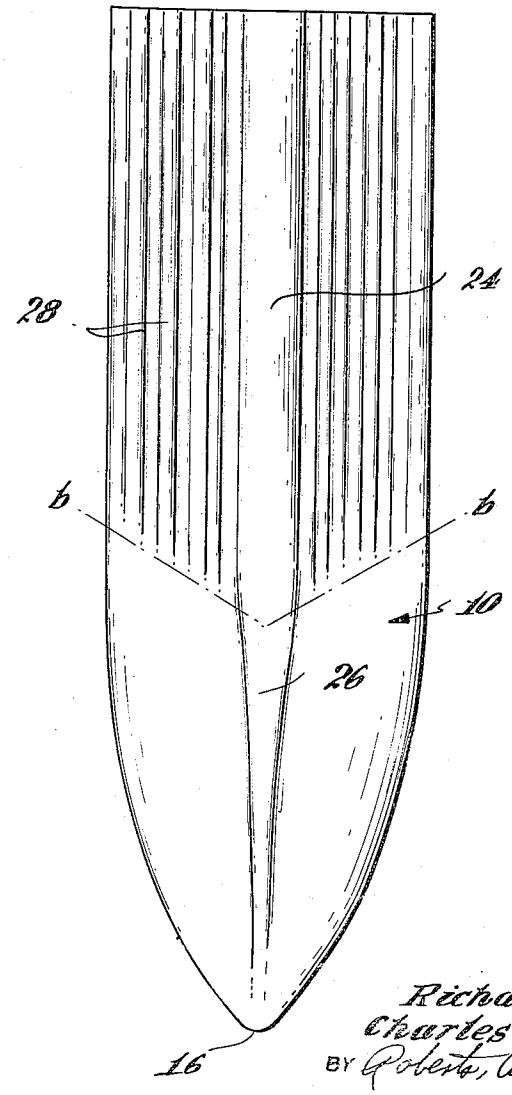


Fig. 3

INVENTORS
Richard P. Bank
Charles P. Jacobs
BY Roberts, Cushman & Glover
ATT'YS

United States Patent Office 2,965,061 Patented Dec. 20, 1960

2,965,061

BOAT HULL

Richard P. Bank, 221 Lake Shore Drive, Marlboro, Mass., and Charles P. Jacobs, Washington St., Hudson, Mass.

Filed Sept. 14, 1959, Ser. No. 839,826

7 Claims. (Cl. 114—56)

This invention relates to boats and more particularly to small crafts such as are conventionally powered by outboard motors, although it is to be understood that the invention is equally applicable to boats in which inboard motors are employed.

The principal objects of the invention are to provide a boat hull with a bottom structure so designed as to soften the pound or bump when the craft is driven at high speed over rough water; to insure level cruising without specific passenger arrangement; to improve stability in spite of high wind; to minimize water friction thereby to obtain more speed for a given horsepower with a saving in fuel consumption and engine wear; to minimize skidding or sliding on turns and hence to increase maneuverability; and to give maximum strength.

This is accomplished herein in accordance with the invention by providing the hull with a bottom having a keel of convex transverse section extending longitudinally along the median line from stern to stem, the major portion of which is of uniform width, that is from the stern to a point just beyond amidships, and the remainder of which is of tapering transverse and vertical section up to the stem, and at opposite sides a plurality of ribs of convex transverse section which start at the stern and extend forwardly to the place at which the keel commences to taper, the remainder of the bottom of the hull being smooth. Preferably the entire bottom of the hull is convex, the ribs are about in the order of one-fifth the width of the keel and the forward ends of the ribs terminate along lines which are swept back from the keel at an acute angle.

The invention will now be described in greater detail with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of a boat of the kind designed for motivation by means of an outboard motor;

Fig. 2 is an elevation of the stern of the boat; and

Fig. 3 is a plan view of the bottom of the boat.

Referring to the drawings the boat hull comprises a shell having a bottom **10**, a transom **12** and sides **14** extending from the transom forwardly and converging at the stem **16**. Optionally a partial deck **18**, a cockpit **20** and a well **22**, together with other accessories, may be provided.

The shell of the hull is preferably constructed of fiberglass molded to its final shape in accordance with customary practice, however it is to be understood that the novel features of the bottom construction may be embodied in hulls constructed of other materials, for example plywood or metal, with the same advantages.

According to the invention the bottom of the shell from side to side is slightly convex as indicated by the dot and dash line *a—a* (Fig. 2), the convexity being so shallow that there is no appreciable roll and being partly offset by the ribs along the outer sides, as will be described hereinafter.

A keel **24** which is convex in transverse section extends longitudinally along the median line of the hull from the

stern to the stem, the keel extending downwardly from the line of convexity *a—a* of the bottom. Throughout the major portion of its length, that is up to and just beyond the midship, the keel is of uniform width and depth. Forwardly of this, however, the keel **26** tapers both in width and depth and ultimately blends with the curvature of the hull at the stem. Laterally of the keel, at opposite sides thereof, there are a plurality of ribs **28** which parallel the keel and are uniformly distributed in parallel relation to each other, the grooves **30** between the ribs **28** being substantially the same size as the ribs but obverse thereto. The ribs and grooves extend forwardly from the stern parallel to the keel up to the point where the keel commences to taper, the grooves terminating along lines *b—b* which are swept back from the keel at acute angles so that the ribs nearest the keel are longest and those furthest from the keel are shortest. As previously indicated the outer most ribs extend downwardly beyond the normal line of curvature of the bottom, acting as steps which stabilize the boat transversely.

The effect of the grooves between the ribs is to break up the surface contact between the water and the bottom of the hull to such an extent that cushions of air are induced at the bow by the forward movement of the boat, which pass rearwardly through the grooves, yieldingly supporting the boat on the surface of the water thereby reducing the pound, reducing skin friction and hence increasing the speed. The ribs at the same time prevent sidewise skidding due to winds or sharp turns. The combination cuts down vibration, and by holding the boat out of the water takes advantage of the maximum power available with a minimum amount of fuel consumption.

By way of illustration only and without limitation a boat of the foregoing kind may have an overall length of 15 feet 11 inches, width of 60½ inches and depth of 34½ inches. When constructed to the foregoing dimensions the keel is of uniform width for a length of approximately 9 feet 2 inches and tapers from there on to the stem. The ribs vary from the longest, which is 8 feet 11 inches, next to the keel, to the shortest at the outside which is 8 feet 2 inches. The bottom which is convex has a radius of curvature of approximately ten feet and the keel and ribs project therebelow, the keel having a radius of curvature of approximately 13¼ inches and the ribs a radius of curvature of approximately 2½ inches. The grooves between ribs are substantially of the same radius of curvature as the ribs. Thus the keel is approximately five times the width of the ribs.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

We claim:

1. A hull for a boat comprising a shell a portion of which constitutes a longitudinally-smooth bottom, a keel extending along the longitudinal medial line of the bottom from stem to stern, said keel having a convex surface of uniform width from stern to amidship and which tapers from amidship to stem, and a plurality of laterally disposed spaced parallel convex ribs at opposite sides of the keel which extend from the stern to amidship, said ribs being substantially narrower than the uniform width portion of said keel, that portion of the bottom forwardly of amidship being smooth.

2. A hull according to claim 1 in which the laterally disposed ribs are in the order of one-fifth of the width of the keel.

3. A hull for a boat comprising a shell a portion of which constitutes a longitudinally-smooth bottom which in transverse section is convex, a convex keel extending along the longitudinal medial line of the bottom from stern to stem, said keel having a portion of uniform width

extending from the stern to amidships and a tapering portion extending from amidships to the stem, the latter portion merging with the stem, a plurality of spaced parallel convex ribs disposed at opposite sides of the keel, the forward ends of the ribs terminating amidships along lines swept back from the keel at an acute angle so that the ribs closest to the keel are longest and those farthest from the keel are shortest, said ribs being substantially narrower than the uniform width portion of said keel, that portion of the bottom forwardly of the ends of the ribs being smooth.

4. A hull for a boat comprising a shell a portion of which constitutes a longitudinally-smooth bottom which is transversely convex from stern to stem, the bottom from stern to amidships being of substantially uniform width and beyond tapering to the stem, a keel rib of convex transverse section protruding downwardly from the normal curvature of the convex bottom and extending from stern to stem along the medial line of the bottom, a portion of the keel from stern to amidships being of uniform width and forwardly thereof tapering in width and depth and blending with the stem at its forward extremity, and a plurality of ribs of convex cross-section

disposed at opposite sides of the keel in parallel relation thereto, said ribs being substantially narrower than the uniform width portion of said keel, said ribs being coextensive with that portion of the bottom which is of uniform width and the tapering portion of the bottom forwardly thereof being smooth.

5. A hull for a boat according to claim 4, wherein the ribs also extend downwardly from the normal curvature of the convex bottom.

6. A hull for a boat according to claim 4, wherein the grooves between the ribs are of substantially the same size as the ribs but obverse thereto.

7. A hull for a boat according to claim 4, wherein the bottoms of the grooves lie substantially on the normal curvature of the convex bottom.

References Cited in the file of this patent

UNITED STATES PATENTS

1,050,517 Chase ---------- Jan. 14, 1913

FOREIGN PATENTS

1,063,744 France ---------- May 5, 1954