

Dec. 21, 1937.

B. W. MORRIS, JR

2,103,087

POWER BOAT

Filed Nov. 3, 1933

3 Sheets-Sheet 1

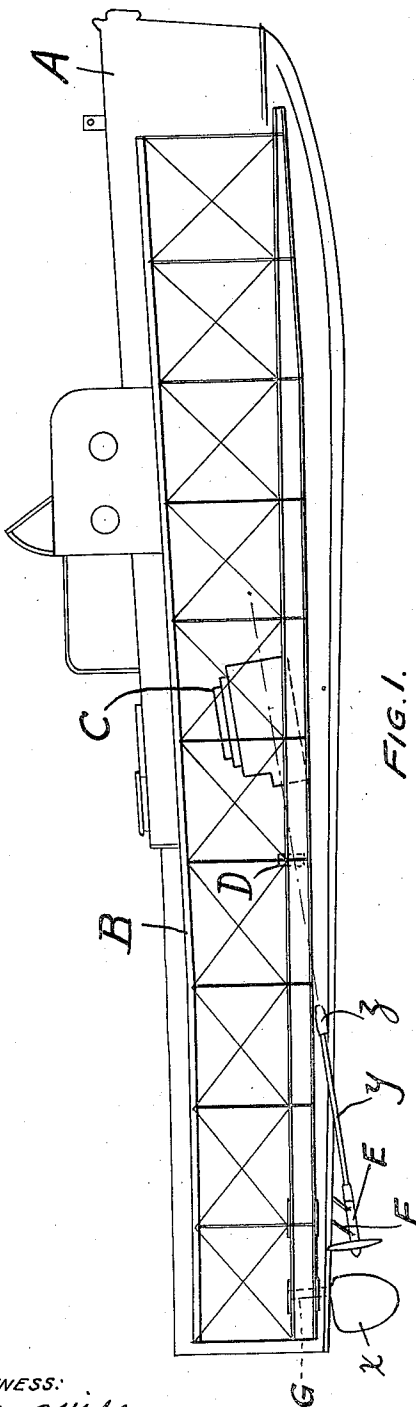


FIG. 1.

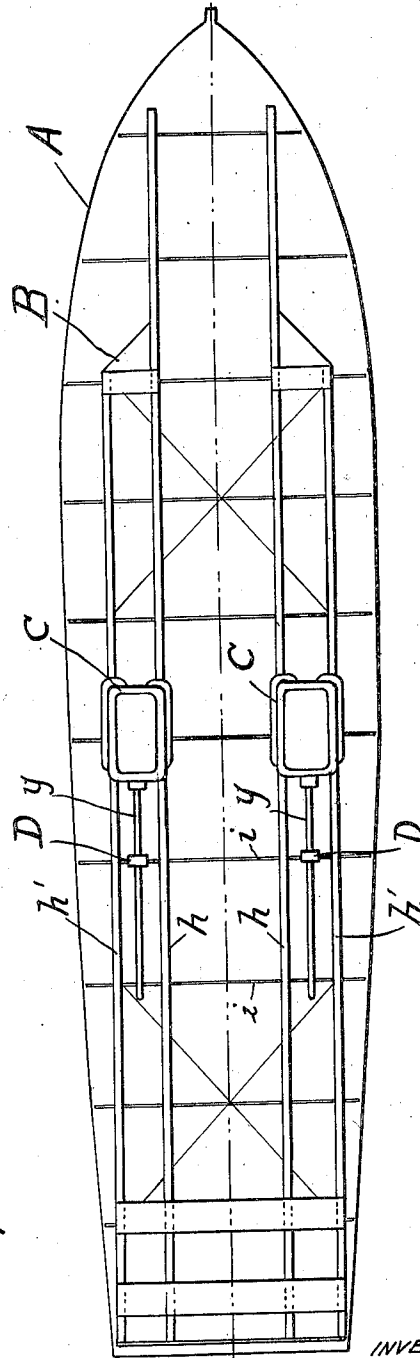


FIG. 2.

WITNESS:

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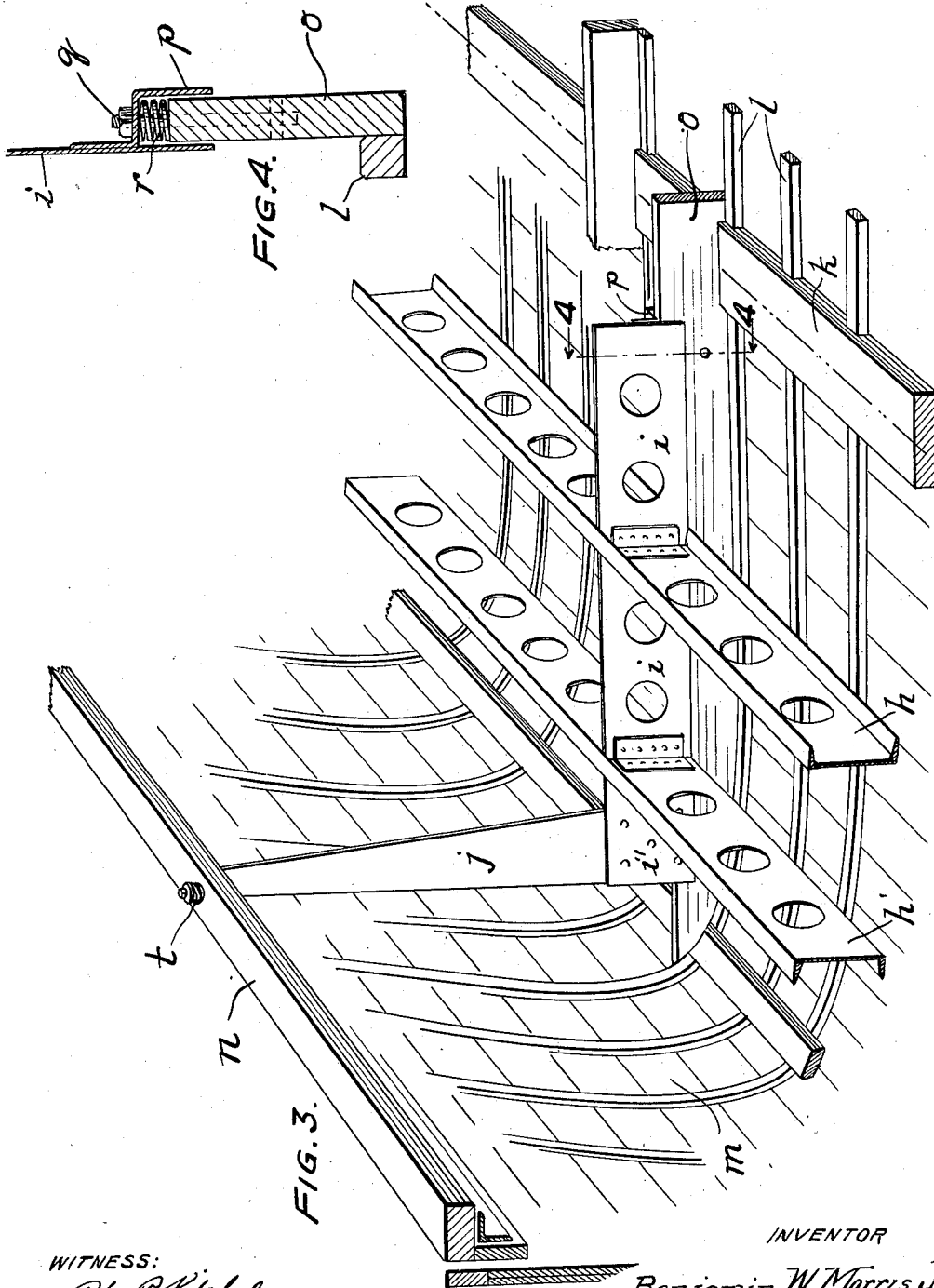
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3 Sheets-Sheet 2



WITNESS:

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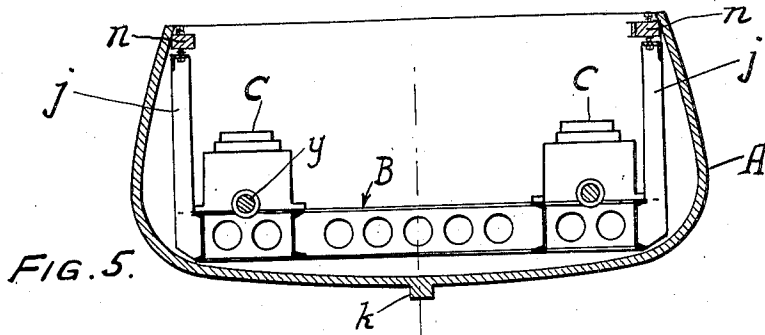
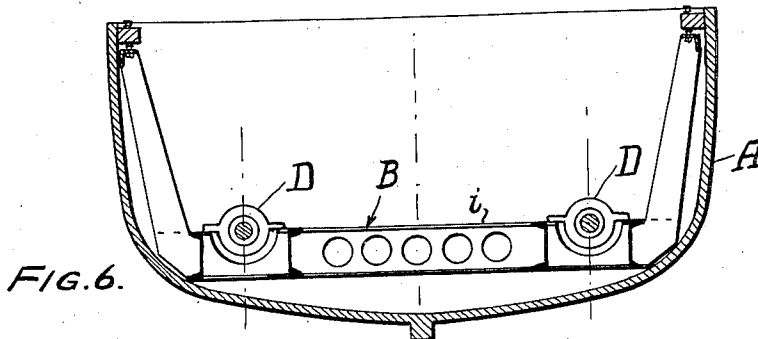
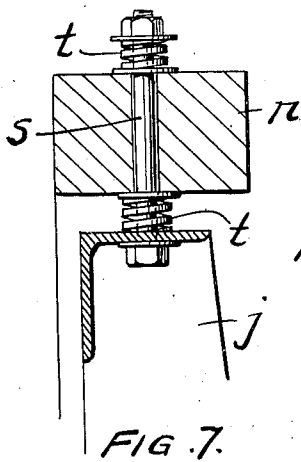
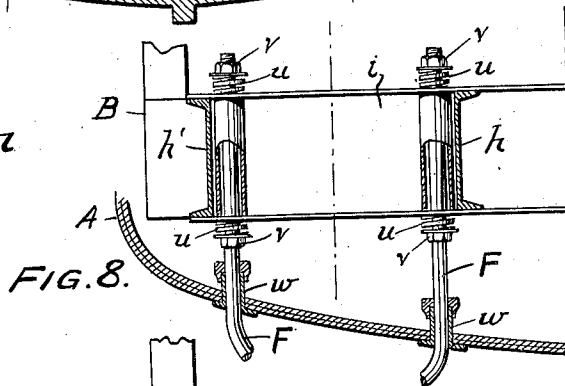
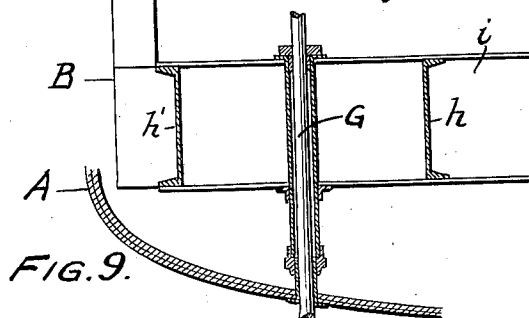
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POWER BOAT

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3 Sheets-Sheet 3



WITNESS:
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UNITED STATES PATENT OFFICE

2,103,087

POWER BOAT

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Application November 3, 1933, Serial No. 696,485

2 Claims. (Cl. 114—65)

This invention relates to an improvement in power boats and more particularly to the type adapted to be propelled by power generated by an internal combustion engine.

Heretofore it has been customary to form the hull of a power boat from wood, or from wood and steel, and to mount the power plant on a bed, of wood or steel, in turn rigidly secured to floor members within the hull. Likewise, it has been customary to support the propeller shaft inboard by means of bearings supported from elements of the hull independent from members supporting the engine bed, and outboard by means of a bearing supported by a strut supported from the hull.

The type of construction heretofore generally used has been found to be open to numerous objections, more especially in that due to the independent support of the power plant and propeller shaft bearings more or less misalignment of the propeller shaft occurs especially in high speed boats and in unquiet water due to the working of the hull, with the result that propeller shaft bearing friction is high causing loss of effective power and shortening bearing life. Further, where the power plant is mounted on a steel bed supported from wooden floors, or on a wooden bed, it has been found that under heavy strain the metal parts will invariably bear away from the wooden parts. Again, in the form of construction heretofore customary, the weight of the power plant has been concentrated on the portion of the hull supporting the power plant bed and, since the power plant has been rigidly secured to the hull, vibration thereof is transmitted directly to the hull with disadvantageous effect upon the fastenings, caulking, etc.

Now in accordance with this invention a construction is provided whereby the power plant and the propeller shaft, including its adjuncts as reverse and other gearing, and indeed, if desired, all the accessories of supply and control of the power plant, will be supported from the hull as a unit, having no rigid connection with the hull, and in a manner such as to distribute the weight thereof substantially uniformly throughout the hull, to insure alignment and maintenance of alignment of the propeller shaft bearings, both inboard and outboard, and to largely eliminate the transmission of vibration from the power plant to the hull.

Broadly the invention contemplated by this invention comprises, in a power boat, the combination of a hull and a frame element, for the support of a power plant, mounted within the hull

without rigid connection with any of the elements thereof. More specifically, from one standpoint, the invention is applicable to constructions involving a wooden hull and a metal frame element; and from another standpoint the frame element serves not only to support the power plant, but also supports both the inboard and outboard propeller shaft bearings and any propeller shaft gearing as a unit with the power plant and without rigid connection with the hull.

From still more specific or limited standpoints the invention involves the various principles and details of design and construction, in whole or in part, which will be more particularly described hereinafter with reference to a preferred embodiment thereof.

Having now indicated in a general way the nature and purpose of this invention, I will proceed to a detailed description of a preferred embodiment thereof with reference to the accompanying drawings in which:

Figure 1 is a diagrammatic side view of a power boat embodying this invention.

Figure 2 is a diagrammatic plan view of the subject of Figure 1.

Figure 3 is a isometric view, partly in section, showing a portion of the power boat shown in Figure 1.

Figure 4 is a detail sectional view on line 4—4 Figure 3, showing a detail of construction.

Figures 5 and 6 are cross-sectional views of the power boat shown in Figures 1 and 2 showing details of construction.

Figure 7 is an enlarged sectional view showing a detail of construction.

Figure 8 is a sectional view, partly broken away, showing details of a propeller shaft strut and its mounting.

Figure 9 is a sectional view, partly broken away, showing details of a rudder post and its mounting.

Referring to the several figures generally, A indicates the hull of a power boat, preferably constructed of wood and B indicates a frame element, preferably constructed of metal, as for example, iron, steel, or an alloy, as an alloy of aluminum.

The frame B is mounted within the hull and extending fore and aft, from adjacent the bow portion to adjacent the stern portion, is adapted for the support of a power plant C, or, as in the drawings, a pair of power plants, inboard propeller shaft bearings, as bearings D, and outboard propeller shaft bearings, as bearings E, through the medium of struts F.

The frame element B is also, as has been indi-

cated, adapted for the support of the rudder post G and the various elements of supply and control, as fuel tanks, tiller line guides, steering gear, engine control devices, etc., etc. not shown.

5 The frame element B may be of any suitable or desired construction, and, as has been indicated, may be formed from any suitable metal or metal alloy. As illustrated by way of example, the frame element B may comprise a pair of main
10 beams *h*, *h* and a pair of auxiliary side beams *h'*, *h'* where the frame is adapted for the support of two power plants, as shown.

The main beams and auxiliary beams are tied together in parallelism by means of transverse
15 members *i*, *i*. Vertical members *j*, *j*, cross-braced by means of wires are secured to the auxiliary beams by means of transverse members *i'*, *i'*, at points opposite to the points of connection of transverse members *i*, *i*.

20 The main beams *h*, *h* extend fore and aft substantially the full length of the hull A, which may be of any usual or desired construction having a keel *k*, frames *l*, planking *m*, a rail *n*, and floors *o* for the support of a deck. The auxiliary
25 beams *h'*, *h'* extend fore and aft from the stern to points somewhat short of the forward ends of the beams *h*, *h*.

The frame B is secured within the hull by resilient connections formed, in the embodiment
30 illustrated, between transverse members *i*, *i* and floors *o*, and by resilient connections formed, in the embodiment illustrated, between the upper ends of the vertical members *j*, *j* and the rail *n*.

The connections between members *i*, *i* and the
35 floors are formed through the medium of angle members *p* secured to members *i*, *i* and in turn bolted to the floors through the medium of studs *q*, which carry springs *r* positioned between the angle members and the floors, so that the con-
40 nections between the angle members and floors are indirect or non-rigid, resilient, through the spring *r*, which serves as a resilient mounting, all as shown in detail in Figure 4.

The upper ends of the vertical members *j*, *j*
45 are flanged and their flanges secured to the rail *n*, or to other convenient longitudinal member of the hull, through the medium of bolts *s*, carrying springs *t*, *t* positioned on opposite sides of the rail and forming indirect or non-rigid, re-
50 silient connections, all as shown in Figure 7.

The power plants C, C, as, for example, internal combustion engines, are rigidly secured to beams of the frame B at suitable desired points by any suitable means, as by bolting.

55 The propeller shafts *y* are supported inboard in bearings D, mounted in transverse members *i* of the frame. The propeller shafts pass out of the hull through the usual logs *z* such as are shown, for example, in the patent to Robbins No. 1,063,389, and are supported outboard by bear-
60 ings E, struts F for the support of which are supported from a transverse member *i* of the frame B, through the medium of springs *u* secured to a transverse member *i* by means of nuts *v*
65 threaded on the strut members. The struts pass out of the hull through suitably packed joints *w*, all as shown in Figure 8.

Likewise, the rudder post G, upon which the rudder *x'* is mounted, is supported from a transverse
70 member *i* of the frame B, as shown in Figure 9.

It will now be noted from the above description that in accordance with this invention the power

plant or power plants and the propeller shaft, through the medium of its inboard and outboard bearings, are supported independently from the hull of the boat through the medium of the frame B, which is of rigid construction and which
5 is secured within and connected to the hull through the medium of indirect, non-rigid, resilient connections. As a result the power plant or plants and the propeller shaft or shafts are mounted in effect independently of the hull and
10 also as a unit insuring maintenance of alignment between the propeller shaft bearings and power plants, thus reducing to a minimum bearing friction and bearing wear. As a further result, the weight of the power plant or power plants may
15 be and is distributed throughout the hull as compared with being concentrated as in prior constructions.

The frame B, since it is rigid, serves to a large extent, despite its indirect connection with the
20 hull, to stiffen the hull without contributing any undesirable rigidity. Further, since the frame is connected to the hull through non-rigid resilient connections, the transmission of vibration from the power plant or plants to the hull is mini-
25 mized.

It will be understood that it is not contemplated that this invention shall be limited in any way by the foregoing particular detailed description of a preferred embodiment thereof, it
30 being obvious that the details may be widely varied and that the invention from the basic standpoint is not dependent upon any particular details of construction either of the frame per se, of the hull per se, or of the connections between
35 the frame and hull, it being only of the essence that the frame be substantially rigid and that it be connected to the hull indirectly through non-rigid, resilient connections.

As has been indicated, the frame will desirably
40 support in addition to the power plant or plants and propeller shaft bearings, the various accessories thereof, as fuel tanks, etc. and the various control devices, as for engine control and steering of the boat. Indeed, if it be desired, all of the
45 various supply elements for the boat and which are of any substantial weight, as water tanks, etc., may, and in many cases desirably will be, supported from the frame.

What I claim and desire to protect by Letters
50 Patent is:

1. In a power boat, a hull, a frame independent of the hull and extending fore and aft within the hull, non-rigid resilient means forming the sole connection between the frame and hull, a power
55 plant mounted on the frame independent of the hull, a propeller shaft, inboard and outboard propeller shaft bearings, the power plant and propeller shaft bearings being mounted on said frame independent of said hull.

2. In a power boat, a hull, a frame independent of the hull and extending fore and aft within the hull, non-rigid resilient means forming the sole connection between the frame and hull, a power plant mounted on the frame independent
60 of the hull, a propeller shaft, inboard and outboard propeller shaft bearings, the power plant and said inboard propeller shaft bearing being secured rigidly on said frame and said outboard propeller shaft bearing being resiliently secured
65 to said frame.

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