March 20, 1956 G. F. HOGBERG 2,738,751

BOAT CONSTRUCTION, INCLUDING CUSHIONED MOUNTING BOARD FOR OUTBOARD MOTOR

Filed Feb. 17, 1954

Fig. 1.

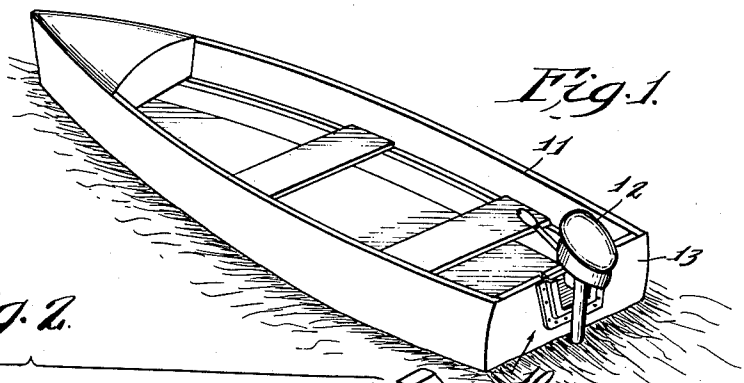


Fig. 2.

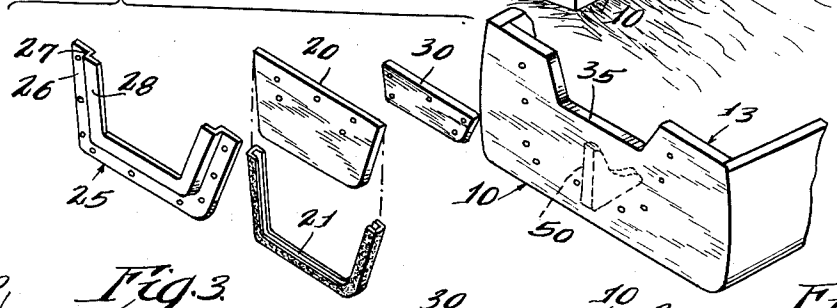


Fig. 3.

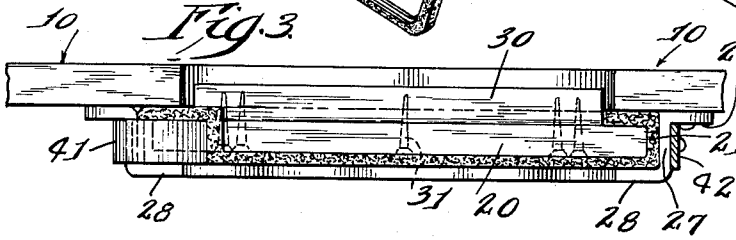


Fig. 6.

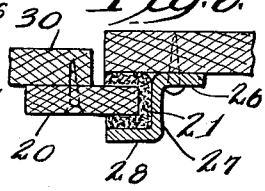


Fig. 4.

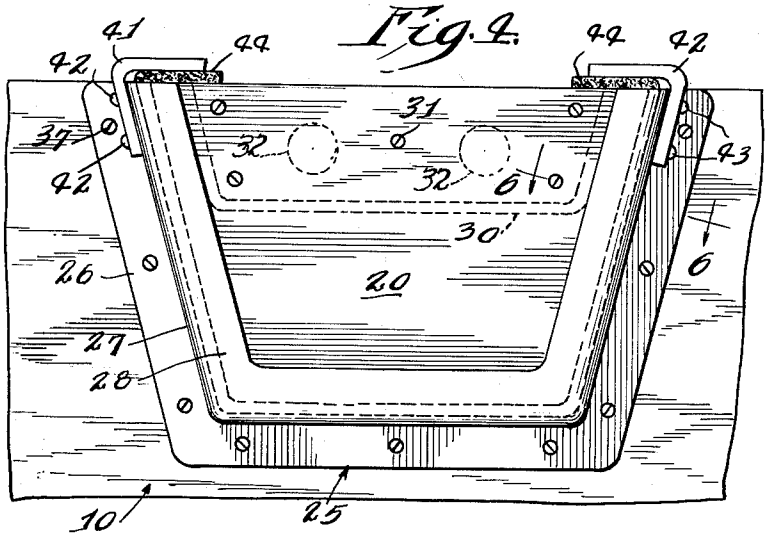
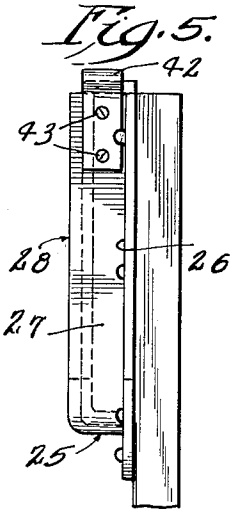


Fig. 5.



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BOAT CONSTRUCTION, INCLUDING CUSHIONED MOUNTING BOARD FOR OUTBOARD MOTOR

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2 Claims. (Cl. 115—17)

The present invention relates to outboard motorboats, and more particularly to structure for mounting outboard motors.

It is an object of the present invention to provide a motor mounting for an outboard motorboat which prevents transmission of vibration to the boat structure and which substantially reduces the noise usually associated with the use of outboard motors. It is another object to provide a novel motor mounting which may be built into new boats during manufacture, but which is particularly suited for installation on existing outboard motorboats. It is a related object to provide a motor mounting which is universal in use, being applicable to all sizes of motorboats and usable with all types and sizes of outboard motors. It is a further object to provide a motor mounting which may be readily installed by a boat owner even though unskilled in the handling of tools, which requires minimum modification of an existing boat, which insures watertight integrity, and which actually strengthens and reinforces the boat transom.

It is yet another object to provide a motor mounting which prolongs the life of the boat, not only protecting it from the ravages of continued vibration, but also from shocks caused by the striking of submerged objects at high speed.

Other objects and advantages of the invention will become apparent upon reading the attached detailed description and upon reference to the drawing, in which:

Figure 1 shows a motorboat having a motor mounting constructed in accordance with the present invention.

Figure 2 is an exploded perspective showing the manner in which the motor mounting is assembled.

Figures 3, 4 and 5 are top, front and right side views, respectively, of a motor mounting constructed in accordance with the present invention.

Figure 6 is a fragmentary section taken along the line 6—6 in Figure 4.

While the invention has been described herein in connection with a preferred embodiment, it will be understood that I do not intend to limit the invention thereto, but intend to cover all embodiments and modifications which may be included within the spirit and scope of the appended claims.

Turning now to the drawing, a motor mounting constructed in accordance with the present invention is indicated at **10**, mounted on a conventional motorboat **11** and supporting an outboard motor **12**. The motorboat includes a transom **13** extending across the rear end, to which outboard motors are conventionally clamped.

In carrying out the present invention the outboard motor is not clamped to the transom, but rather to a mounting board which is resiliently supported on the transom, the transom being cut out to a shallow depth to permit engagement between the regular motor mounting pads and the mounting board, enabling the motor to ride in about the same position as it would if conventionally attached.

As shown in Figures 2–6, the mounting board **20** is

in the shape of a symmetrical trapezoid or "keystone," the upper edge being approximately flush with the upper edge of the transom. The vertical height of the mounting board, as shown in the drawings, is such that it extends downwardly more than half, and preferably about two-thirds, the vertical dimension of the transom. This adds to the strength of the transom against the forces imposed by a mounted motor, as explained below. Such mounting board is floatingly nested in a resilient channel member **21** of rubber or the like. For the purpose of supporting the mounting board in the transom and without interfering with the free vibrating movement thereof, a three-sided clamping member or frame **25**, open along the top, is provided having a trapezoidal shape which mates with that of the mounting board. The frame, which may be constructed of aluminum or the like, has a "stepped" cross section, providing a mounting flange **26**, a perpendicular offset portion **27** having a width which is slightly less than the normal width of the channel, and a retaining flange **28**. The flange **28**, which is inwardly directed, overlies the channel member, keeping the channel and the board **20** securely captive.

For the purpose of reinforcing the mounting board **20**, a driving board **30** is employed which is removably fastened to the mounting board by means of wood screws **31** or the like. In practicing the invention, the driving board is made considerably narrower than the mounting board, providing an area which is adequate for engagement by the regular mounting pads on conventional types of outboard motors, shown in outline at **32**. Such driving board protects the mounting board against wear and abrasion and may be removed and replaced when worn.

To fasten the present motor mounting to a boat transom, such transom is first cut out to form a shallow notch **35**, as indicated in Fig. 2. The notch profile should conform to the outline of the driving board, with sufficient clearance provided, so that bottoming of the edge of the driving board against the transom does not occur during normal use. Such clearance may be on the order of a quarter of an inch. The bracket **25** is screwed in place on the transom by wood screws **37**. Installation may be completed in an hour or so by a boat owner, even though he may have little or no skill in the handling of tools.

To positively lock the mounting board in the bracket **25**, retaining members **41**, **42** are used (see Figures 4 and 5). These retaining members are simply L-shaped strips of metal which are positioned to overlie the top edge of the mounting board, the depending legs being fastened to the offset portion **27** of the metal bracket by means of suitable machine screws **43**. Padding **44** is interposed between the members **41**, **42** in the mounting board, which padding may be a continuation of the rubber channel **21**.

One of the primary features of the construction discussed above is that it isolates vibration from the transom and boat structure, yet requires only a minimum of cutting or other modification of the transom. Thus, the driving board **30** may be made as narrow as desired, so that the notch **35** which is cut into the transom is only a few inches in depth in the average case.

The effective isolation provided by the resilient channel **21** prevents the entire boat from acting as a sounding board, keeping the noise to a level which permits normal conversation and greatly reducing the fatigue which is usually associated with long periods of outboard motorboating. The wear and tear on the boat is also considerably reduced, especially where a heavy, powerful motor is used with a boat which is relatively lightly constructed. The boat is further protected by the presence of the resilient cushion which absorbs the shock upon striking a submerged object. This is particularly true where the tilt-up friction adjustment on the motor is set rather stiff.

In addition to providing a cushioning effect, the channel member **21** serves to prevent entry of water along the edge of the mounting board. This, combined with the fact that the root of the notch **35** is well above the waterline, assures watertight integrity under all conditions.

A further feature of the present device is that it is almost universally applicable to various types of motorboats and various types and sizes of motors. The only requirement is that the transom afford a relatively flat mounting surface and that a shallow registering notch **35** be cut in the upper edge of the transom. Since the present motor mounting is externally fastened, it does not interfere with the presence of reinforcing angle brackets coming in from either the bottom or the sides of the boat, as indicated, for example, at **50** (Figure 2).

Moreover, it will be apparent that when a motor is clamped to a transom, with its propeller depending a considerable distance into the water, the forward thrust of water reaction on the propeller produces a torque or moment tending to twist the top of the transom rearwardly. This effect will be obvious when one remembers that a high powered motor will actually tilt the bow of a boat upwardly out of the water. If a motor of considerable size is employed on a light boat, it is possible that the transom will actually break under the influence of this bending moment concentrated at the motor mounting pads.

The present resilient mount adds to the strength of the transom in resisting such bending moments and thus makes possible the use of a higher powered motor on any given boat. First, since the mounting board **20** overlies the boat transom and extends downwardly at least half the vertical dimension of the latter, the bending moment transmitted from a motor to the mounting board is resisted by forces distributed over the transom and transmitted through the cushioning member. Since the bending moment is not concentrated on the transom and since the mounting board **20** is strengthened by the driving board **30** at the point of the motor pads, more torque can be withstood. Secondly, the metallic frame **25** is fastened rigidly to the boat transom. The perpendicular portion **27** forms a rib which is extremely strong against bending in a rearward direction. This will be apparent when one considers that a metal strap may be relatively easily bent or folded to bring its flat sides together, but may be bent or folded to bring its edges together only with the application of a much greater bending force. For this reason, the portion **27** of the frame **25** particularly reinforces and strengthens the transom against bending under the rearward moment imposed by a mounted motor. Therefore, the effect of an installed motor mounting of the present type is to substantially increase the strength of the transom.

A very real advantage also arises from the "keystone" shape or downward taper of the mounting board **20**, frame **25**, and cushioning member **21**. For if the resident cushioning member is severely compressed, it becomes, in effect, a rigid piece which will transmit vibrations without diminution. If the side edges of the mounting board **20** and frame **25** were vertical, all the weight of a motor would be effective in compressing the lower or horizontal portion of the cushioning member **21**; unless that lower portion were extremely large and thick, it might be compressed beyond its elastic limit.

This difficulty is avoided in the present arrangement because the inclined side edges of the mounting board and frame aid in the support of the motor. That weight is thus distributed along all portions of the cushioning member **21**, and the latter, therefore, may be thinner without risk of any part being compressed to the extent that it no longer absorbs vibrations.

As a result of the above advantage, the present motor mounting may be effectively incorporated in new boats as a sales promotion feature in addition to use on boats already in the field. The finished product presents a very clean-cut and efficient appearance, and does not detract from the use or appearance of the boat for other purposes.

I claim as my invention:

1. In an outboard motorboat having a transom with a shallow notch in the upper edge thereof, the combination comprising a mounting board overlying the central back surface of the transom, said mounting board having its upper edge substantially flush with the upper edge of the transom and extending downwardly more than half the vertical dimension of the latter, a three-sided metallic frame open along the top and of stepped cross section having (1) an outwardly extending flange portion fastened face-to-face to the back surface of the transom, (2) an inwardly directed flange portion for extending over the edges of said mounting board, and (3) an offset portion interconnecting the flange portions and oriented substantially perpendicularly to the rear face of the transom, a channel shaped cushioning member of resilient, rubber-like material disposed in said frame and receiving the edges of the mounting board so that the latter is resiliently nested between said inwardly directed flange portion and the transom, a driving board fastened to the inner face of said mounting board along the upper portion of the latter and having sufficient vertical height to receive conventional motor mounting pads, said driving board projecting into the notch in the transom but having clearance between its edges and the edges of the notch, the overlap of the mounting board with, and the perpendicular portion of the frame fixed to, the transom strengthening the latter against rearward bending moments.

2. The combination set forth in claim 1 further characterized by hold-down means overlying the top of said mounting board to prevent the latter from moving upwardly out of said frame and wherein said mounting board, metallic frame, and cushioning member are of keystone shape so that the weight of a motor on the mounting board is partially supported by the sides of the frame and the compressing effect of the weight of a motor clamped to the driving board is distributed throughout the cushioning member..

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