July 14, 1931. F. W. STERLING 1,814,772

MOTOR SURF BOARD

Filed Sept. 7, 1927 2 Sheets-Sheet 1

Fig. 1.

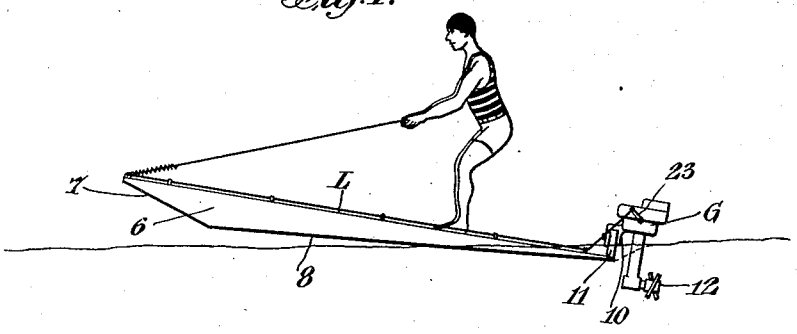


Fig. 2.

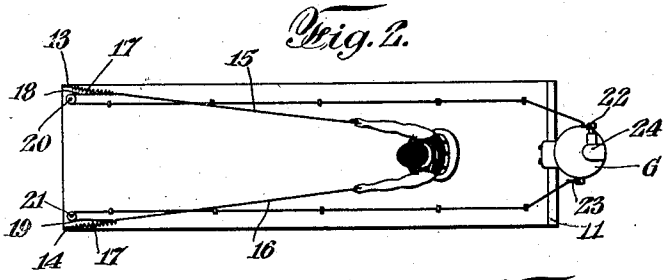


Fig. 3.

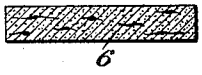


Fig. 6.

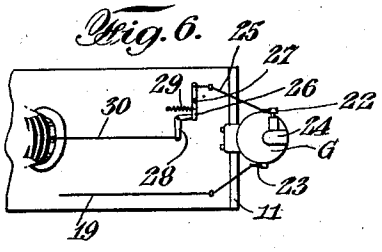
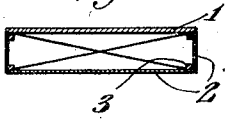


Fig. 4.



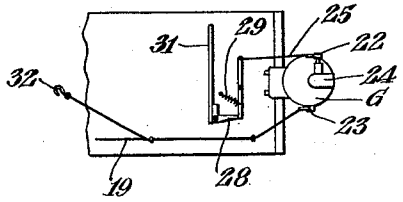


Fig. 5.

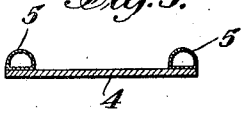


Fig. 7.

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Fig. 8.

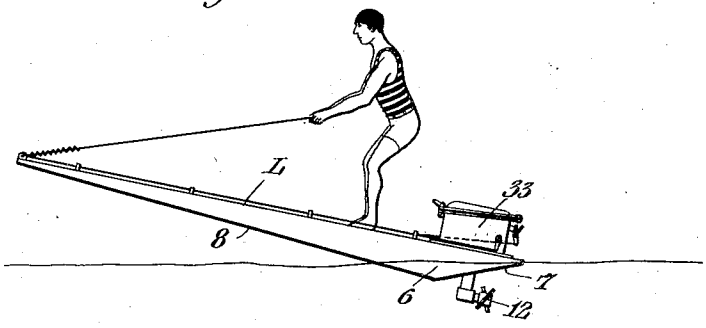


Fig. 9.

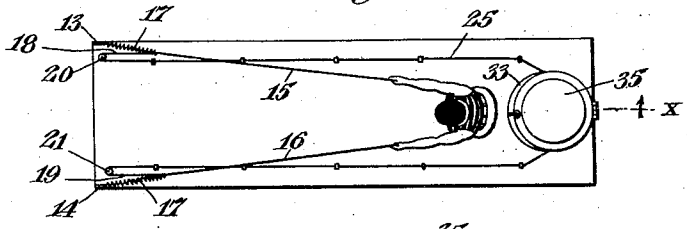


Fig. 10.

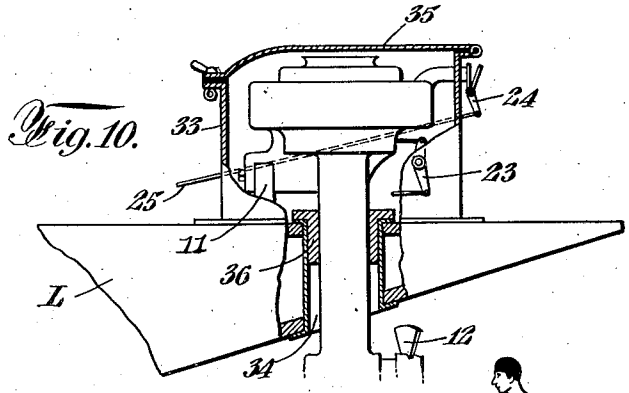
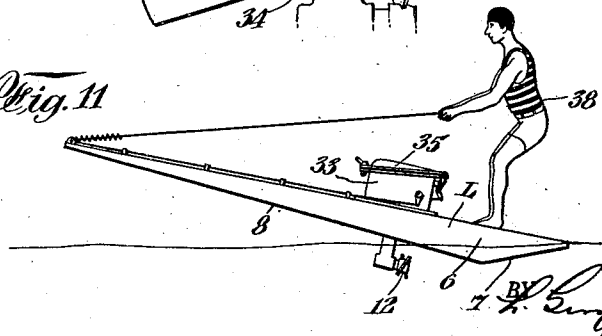


Fig. 11



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Patented July 14, 1931 1,814,772

UNITED STATES PATENT OFFICE

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MOTOR SURF BOARD

Application filed September 7, 1927. Serial No. 217,905.

This invention relates to a motor surf board, and an object of the invention is to provide a surf board which will embody a suitable motor and control means therefor by which the board will be self propelling and under the sensitive control of the rider.

A further object is to so arrange the elements of structure that the board may be readily steered by its rider.

A further object is to provide means which will be automatically operable to stop the motor in the event of a mishap to the rider.

A further object is to provide means whereby the motor is protected against faulty operation or injury from water or spray.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a side elevational view of a motor surf board constructed in accordance with this invention, the device being illustrated as in operation.

Fig. 2 is a top plan view of the structure seen in Fig. 1.

Figs. 3, 4 and 5 are transverse sectional views through the body of the board illustrating different structural forms which may be employed.

Fig. 6 is a fragmentary plan view of the rear portion of the board seen in Fig. 1 and illustrating a modified form of automatic motor control mechanism.

Fig. 7 is a similar view illustrating a further modified form of automatic motor control.

Fig. 8 is a side elevational view similar to Fig. 1 but illustrating a modified form of the device.

Fig. 9 is a top plan view of the structure seen in Fig. 8.

Fig. 10 is an enlarged detail sectional view taken substantially upon the plane of line X—X of Fig. 9, and

Fig. 11 is a top plan view similar to Fig. 9 but illustrating a modified disposition of the motor with respect to the board and the rider's position.

Referring now to the drawings for a detailed description of the structures illustrated therein, and describing first the structure illustrated in Figs. 1 and 2, the reference character L indicates the main body or board. This is preferably of a general rectangular form in top plan, such as is customary in surf board structures. It may consist of a single flat board of unfiorm thickness, being composed of balsa wood or any other light material, such as indicated in Fig. 3. Or it may be built up to comprise a thin top board as 1 and a suitable under-cover of canvas, ply-wood or other suitable material as 2 built upon a trussed frame work 3 as suggested in Fig. 4. Or it may consist of a main base board 4 with longitudinally extending side pontoons 5—5 as suggested in Fig. 5. Or the board or body L may be formed in any other appropriate manner.

While the top surface of the body L is preferably substantially flat throughout, said body is of varying thickness to dispose its under-surface at the most desirable incline, or inclines, to best accomplish a skeeing or sliding action of said bottom surface over the supporting water. In the structure Fig. 1 the body is shown to be relatively thick at its forward portion, as at 6. From this point of greatest thickness a relatively abrupt incline as 7 leads upwardly to the forward edge of the body while a relatively more gradual incline as 8 continues backwardly to the rear edge of the body. It will be understood however that the invention is not limited in this regard, since as illustrated in Fig. 8 of the present application, the relative arrangement of the abrupt and gradual inclines may be reversed so that the point of greatest thickness, as at 9 in said Fig. 8, will appear relatively nearer to the rear edge of the body than to the front edge.

At the rear of the body is mounted a motor

indicated generally by the reference character G. This may be of any type and may be mounted in any approved manner, as for instance it may if desired consist of an ordinary out-board motor having a clamp part as 10 by which it is removably connected to a stern board as 11 provided to receive it upstanding at the rear edge of the body L. Connected to be operated by the motor is of course a suitable propeller 12.

While the motor, or any sort of rudder comprised therein or associated therewith, may be employed to guide the body L in use it is nevertheless a characteristic of the present invention that such guiding means may be entirely dispensed with, the steering of the device being done entirely by the shifting of the weight of the rider's body one way or the other for thereby producing a lateral tipping of the body L and consequent steering action on much the same principle as is well known with regard to the steering of ordinary surf and skee boards now in common use. It is noted in this connection however that the presence of a driving force directly upon the body L materially facilitates the steering action, particularly since there is no tow-rope or other restraining force present.

Extending from the forward opposite corners of the body L, as at 13 and 14, are a pair of reins as 15 and 16 respectively, being in the same general relation and serving the same purpose as the guide ropes or reins commonly found upon skee boards, namely for assisting in the supporting and balancing of the rider and in the steering of the board.

It is a feature of the present invention however that these reins may if desired serve a further purpose or purposes, as for instance they may constitute a convenient medium by which the rider may control the speed of the motor, or by which he may advance or retard the spark in the motor, or by which he may effect the closure of any opening or openings, such as the intake or exhaust openings of the engine to protect said openings against the inflow of water in case of an upset or other emergency, or by which he may readily accomplish any other necessary or emergency function with respect to the motor or other part of the device.

To this end it is suggested that the reins 15 and 16 may be supplied with extensible sections, such as coil springs or the like indicated by the reference character 17. These extensible sections are disposed at the forward ends of the reins adjacent the points of attachment 13 and 14, and attached to the reins rearwardly of the extensible sections are cables as 18 and 19 respectively, said cables passing forwardly about suitable pulleys as 20 and 21 and thence extending rearwardly and into connection with the motor at appropriate parts as at 22 and 23. By this arrangement the rider may, by exerting an unusual pull upon one or the other of the reins, or by allowing one or the other of the reins to slacken, thereby cause movement of the connected cable 18—19 and thus produce the desired effect upon the motor.

As illustrated the cable 18 is shown to extend into connection with a suitable form of valve device as 24 for controlling either or both the intake and exhaust openings of the motor, it being intended that in this instance the pulling strain of the rider upon the rein 15 will hold the valve device 24 normally open but that if for any reason, as for instance an upset, this strain should be relieved the spring 17 will contract and allow the valve device 24 to close and thus protect the motor against injury from water which might otherwise flow thereinto through the intake and exhaust openings.

As illustrated the cable 19 is shown to extend into connection with the throttle lever 23, it being intended here that the rider may at any time exert a proper pull upon the rein 16 for producing opening or closing movement of the throttle.

In the modification Fig. 6 there is illustrated a member 25, which may be either a rod or a cable and which may be connected with the valve device 24 for the same purpose as just described with respect to the cable 18. In this instance however the cable or rod 25 is shown as being connected at one end of a small lever 26, the lever being pivotally mounted as at 27, and there being a pivoted latch 28 arranged to hold the lever normally against swinging and for thereby retaining the valve device normally open. A spring 29 is connected with the lever to hold it normally against the latch. Extending from the latch 28 is a cable or other form of connection as 30 by which the latch is connected with the rider, as by being fastened to the rider's belt, or by being otherwise attached to his person, the intent being that in case the rider is thrown or meets with any mishap which removes him from normal running position the connecting member 30 will throw the latch 28 to disengage the lever 26 and thereby effect closure of the valve device 24. The connecting member 30 may if desired consist of a light cord which will break when excessive strain is applied, and thus release the rider in case he is thrown clear of the body L.

In the modification Fig. 7 it is suggested that in lieu of the connecting member 30 just referred to there may be provided a swash board 31 fixed to the latch 28, the remainder of the structure being the same as in Fig. 6. The operation of this device is entirely automatic in that an upset of the body L while the motor is in operation will result in a rush of water against the swash board and consequent release of the latch 28 and closure of the valve device 24.

In this modification it is also suggested that if desired the cable 19, instead of extending into connection with one of the reins as 16 may simply extend to a convenient point adjacent the rider so that he may operate it at will. At its end it might carry a hook or other device as 32 by which it could be conveniently attached to the rider's belt or other part of his clothing so that he could effect its operation by a simple movement of his body one way or the other if desired.

In the modification Figs. 8 to 10 it is suggested that if desired the motor may be enclosed within a protecting housing as 33, also that the motor may be disposed forwardly of the rear end of the body L and that the propeller shaft of the motor may extend downwardly through an appropriate opening as 34 provided through the body L.

By this arrangement the motor is at all times protected against injury from spray or water in any form, the housing 33 being made water tight as by means of a sealed hinged cover as 35 and a suitable gasket element as 36 arranged in the opening 34.

The intake and exhaust pipes, as indicated by the reference character 37, may extend through the wall of the housing and be there fitted with the valve device 24 which is operable in any one of the ways hereinbefore described, or otherwise. Also the throttle lever 23 may extend through the wall of the housing as indicated.

In the modification Fig. 11 it is proposed that if desired the motor may be set further forward than in the previous disclosures so as to leave an expanse of the upper surface of the body L, as at 38, sufficiently extensive to accommodate the rider between the motor and the rear edge of the body. By thus arranging the motor forwardly of the rider's platform or position all possibility of injury to the rider from the whirling propeller, or by striking the motor during an upset, is eliminated, and furthermore the weight of the motor is so imposed upon the body that it will cause the body to float more nearly upon an even keel in the absence of the rider than in the previous structures.

It is to be noted that the several manual and automatically operable means herein shown or described for controlling one or the other of the features or functions of the motor may all be built into one and the same structure if so desired by the manufacturer.

It is further to be noted that while there is herein shown and specifically referred to an ordinary out-board motor which is of the gasoline explosive type, it is not desired that the invention should be understood as limited in this connection since any other type of motor may be used if desired, such as a different type of gasoline or other explosive motor, a hand operated motor, a foot operated motor, or in fact any type of motor, or even that a sail could be employed as a propelling motor and connected for control in substantially the manner herein disclosed.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description, or shown in the accompanying drawings, shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a surf board comprising a rudderless floatable body providing a platform for supporting a rider upon its upper surface adapted to be guided by shifting of the weight of the rider and consequent tipping of the board and reins connected with the forward portion of the body at points spaced apart transversely of said forward portion arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a rudderless motor and a propeller connected thereto, the propeller being located beyond the rear end of the body and below the plane of the bottom surface of the body constituting a rudderless propelling means for the body, together with means extending from the motor arranged to be operated by the rider for controlling the motor.

2. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor and a propeller connected thereto at the rear of the body for propelling the body, together with means extending from the motor and being connected with said reins whereby to enable the rider to control the motor.

3. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor and a propeller connected thereto at the rear of the body for propelling the body, together with means extending from the motor adapted to be attached to the person of the rider for thereby automatically controlling the motor in the event of displacement of the rider substantially as described.

4. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination

therewith of a motor and a propeller connected thereto at the rear of the body for propelling the body, together with means automatically operable to stop the motor in the event of displacement of the rider.

5. A surf board comprising a rudderless floatable body providing a platform for supporting a rider upon its upper surface adapted to be guided by shifting of the weight of the rider and consequent tipping of the board, reins connected with the forward portion of the body at points spaced apart transversely of said forward portion arranged to be grasped by the rider for assisting in balancing the body and the rider, a mounting provided upon said body intended for the attachment of a rudderless propelling motor, a rudderless propelling motor, and means whereby said motor may be detachably connected with said mounting, so as to dispose the propeller beyond the rear end of the body and below the plane of the bottom surface of the body.

6. A surf board comprising a floatable body providing a platform for the support of a rider, reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, means provided upon said body intended for the attachment of a propelling motor, and means connected with at least one of said reins by which the rider may control such motor.

7. A surf board comprising a floatable body providing a platform for supporting a rider upon its upper surface, reins connected with the forward portion of the body at points spaced apart transversely of said forward portion arranged to be grasped by the rider for assisting in balancing the body and the rider, a mounting provided upon said body intended for the attachment of a propelling motor, and a motor control device carried by the body of a character rendering it automatically operable upon displacement of the rider.

8. A surf board comprising a floatable body providing a platform for the support of a rider, reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, and the body having an opening therethrough through which may extend a portion of a propelling motor for the body.

9. A surf board comprising a floatable body providing a platform for the support of a rider, reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, and the body having an opening therethrough through which may extend a portion of a propelling motor for the body, together with a water proof container for such motor also carried by the body.

10. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, the body having an opening through which a part of the motor extends, and means providing a water proof compartment upon the body for containing the motor.

11. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, the body having an opening through which a part of the motor extends, means providing a water proof compartment upon the body for containing the motor, said compartment having openings therethrough for the engine intake and exhaust, and means manually operable to control at least one of said openings.

12. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, the body having an opening through which a part of the motor extends, means providing a water proof compartment upon the body for containing the motor, said compartment having openings therethrough for the engine intake and exhaust, and automatically operable means to control at least one of said openings.

13. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, said motor having an intake opening, and means extending to a point of accessibility to the rider for closing said opening.

14. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the

body, said motor having an intake opening, and means extending to a point of accessibility to the rider for closing said opening, together with means automatically operable to close said opening.

15. In a surf board comprising a floatable body providing a platform for the support of a rider and reins connected with the forward portion of the body arranged to be grasped by the rider for assisting in balancing the body and the rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, said motor having an intake opening, and means automatically operable to close said opening.

16. A surf board comprising a floatable body providing a platform for the support of a rider, reins connected with the forward portion of the body adapted to be grasped by the rider for assisting in balancing the body and the rider, means provided upon said body intended for the attaching of a propelling motor, and means connected with at least one of said reins to assist the rider in controlling the motor by means of said reins.

17. In a surf board comprising a floatable body providing a platform for the support of a rider, the combination therewith of a motor, a propeller connected to said motor whereby to propel the body, and means automatically operable to stop the motor dependent upon displacement of the rider.

In testimony whereof I affix my signature.

FRANK W. STERLING.