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MARINE CARBURETOR CLUTCH CONTROL

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Fig. 2.

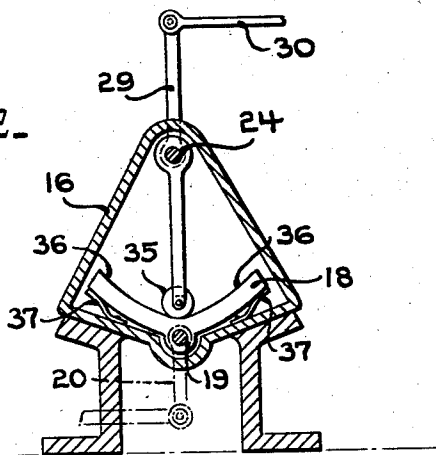


Fig. 3.

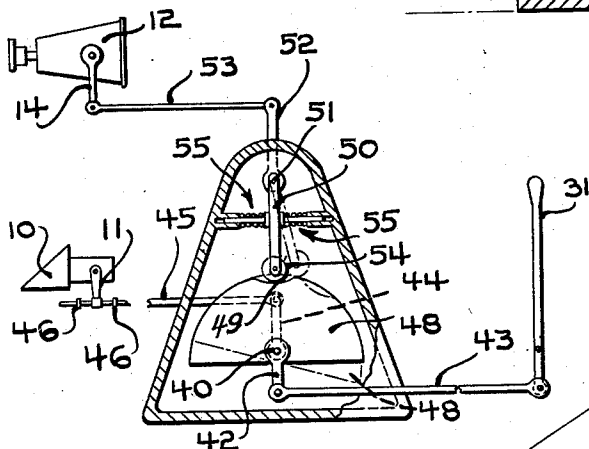
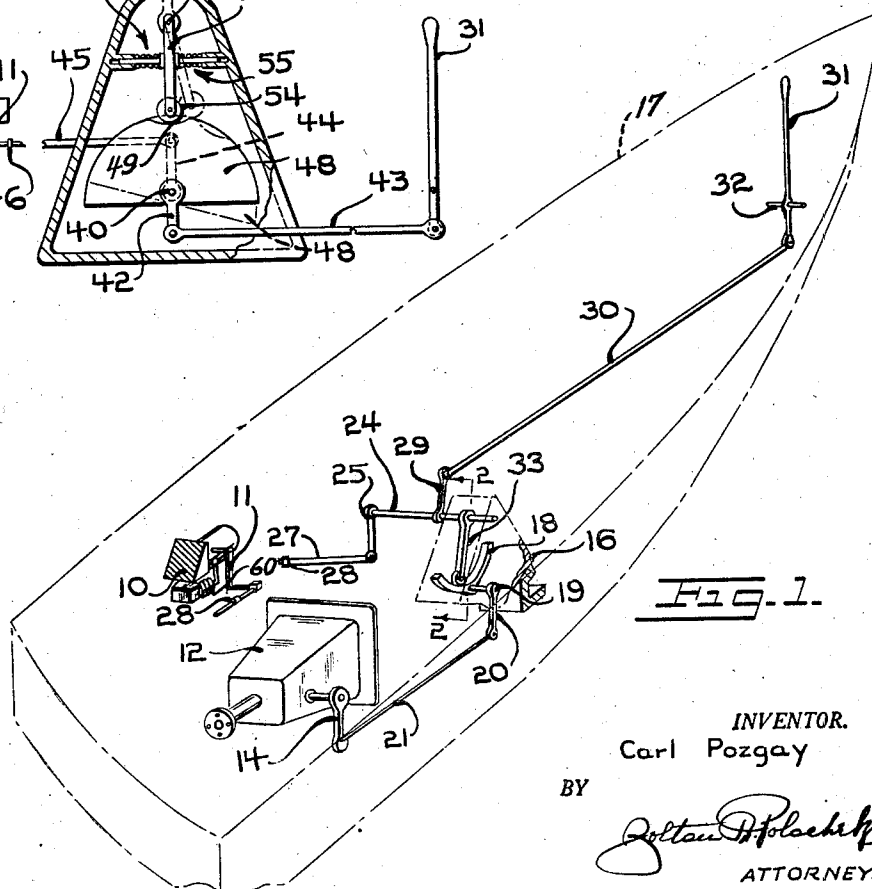


Fig. 1.

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MARINE CARBURETOR CLUTCH CONTROL

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8 Claims. (Cl. 74-472)

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This invention relates to new and useful improvements in a power boat control system.

More specifically, the invention relates to power control systems such as power boat control systems which include a motor throttle and a reverse gear. The invention contemplates the use of a rocker member having a neutral position, a forward position, and a reverse position. It is proposed that this rocker member be connected with the reverse gear for the operation thereof. It is proposed to provide a motor throttle control shaft connected with the motor throttle so that the throttle may be open and closed to various degrees as the shaft is turned, starting at a neutral position, and operable in either direction to open the throttle as desired.

The invention also proposes the provision of means for turning the motor throttle control shaft mentioned in the previous paragraph and including a hand lever having a central or neutral position, a forward position and a reverse position. A control member is mounted on said shaft for controlling said rocker member upon but the slightest forward or reverse movements of the hand lever. With this arrangement the reverse gear may be moved to its neutral, forward and reverse positions, and simultaneously the throttle may be opened to any extent desired.

Several embodiments of the invention are proposed which distinguish from each other in the construction and operation of the rocker member and the control member. However, each embodiment produces the identical results.

Still further the invention proposes a power control system as briefly explained, which is efficient, reliable and which may be manufactured and sold at a low cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a fragmentary perspective view of a power boat control system embodying this invention and illustrated schematically applied to a motor boat.

Fig. 2 is a fragmentary enlarged transverse sectional view through the casing which houses the controller member and the rocker member, this view being as though taken on the line 2-2 of Fig. 1.

Fig. 3 is a fragmentary sectional view simi-

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lar to Fig. 2, but illustrating another embodiment of the invention.

A new and improved power control system in accordance with this invention, includes a motor throttle 10 operated by a control lever 11, and a reverse gear 12. Further details of the power boat will not be given in this specification because the various parts are standard. However, it should be understood that the motor throttle 10 is in the nature of the usual carburetor which controls the motor of the power boat and has a return spring 60 normally returning it to its closed position. The reverse gear 12 is in the nature of the usual reverse gear used on power boats which has three positions, a neutral position, a forward position and a reverse position. The reverse gear is operated by a lever 14. This lever 14 may be moved to three positions representing the three positions mentioned.

The new and improved controller includes a casing 16 which may be stationarily mounted within the motor boat. The motor boat is illustrated by the dot and dash lines 17. A rocker member 18 is located within the casing 16 and is capable of moving to three positions representing the three positions of the reverse gear 12. The rocker member 18 is fixed on a shaft 19 which is turnably mounted in the casing 16 and projects from one side of the casing. A lever 20 is mounted on the shaft 19. A connecting rod 21 connects the levers 14 and 20 for unitary movements.

A motor throttle control shaft 24 is connected with the motor throttle 10 for the operation thereof. Said shaft 24 is turnably mounted through the casing 16. A lever 25 is mounted upon the outer end of the shaft 24 and connects with a connecting rod 27 a connection of which slidably passes through the end of the lever 11 which controls the throttle 10. Collars 28 are adjustably mounted on the rod 27 by which it is possible to set the control lever 11 of the throttle 10 to its initial position.

The motor throttle control shaft 24 is associated with means by which it may be turned to various degrees to control the motor throttle 10. This means includes a lever 29 mounted upon the shaft 24 and connecting with a connecting rod 30 which connects with a pivotally mounted hand lever 31. This hand lever 31 is pivotally mounted upon a pintle 32. The hand lever 31 may be moved to various positions to control the motor throttle 10 and the reverse gear 12. A control member 33 is mounted upon the motor throttle control shaft 24, within the casing 16.

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This control member 33 is provided with a roller 35 which engages against and operates the rocker member 18. The rocker member 18 is in the nature of a double cam having arms 36 projecting to the sides of the shaft 19. Springs 37 are mounted upon the casing 16 and engage the arms 36 for normally holding the rocker member 18 in its neutral position.

The arms 36 are of such curvatures that when the control member 33 is moved slightly right or left the rocker member 18 will be pivoted right or left, compressing the right spring 37 or the left spring 37. Once moved it stops in a fixed position. However, the arms 36 are of such curvatures that when the rocker member 18 is in its right or left position one of the arms 36 is then concentric with said motor throttle control shaft 24. For this reason it is possible to continue moving the control member 33 without affecting the rocker member 18, unless the control member 33 is moved back to its neutral position.

The operation of the power boat control system may be understood from the following:

When the hand lever 31 is in this neutral position the motor throttle 10 will be throttled down, or will be in its neutral position. The handle 31 may now be moved forward to cause the motor boat to move forward. When the handle 31 is moved forward, the motion will be transmitted to turn the shaft 24 which moves the control member 33 so that the rocker member 18 is pivoted in a direction in which the levers 20 and 14 and the connecting rod 21 will operate the reverse gear 12 to place it in its forward position. It is now possible to continue moving the hand lever 31 forward to any amount. This will open the motor throttle 10 to any amount increasing the speed of the motor boat. However, the reversing gear 12 will not be affected during this additional motion, just mentioned, because the roller 35 will merely ride idly along one of the arms 36 of the rocker member 18.

The hand lever 31 may be moved back to its neutral position which will move the reverse gear 12 and the throttle 10 back to their neutral starting positions. The hand lever 31 may now be moved rearward to reverse the motor boat. Upon the slightest rearward motion of the hand lever 31 the shaft 24 will move, moving the control member 33 which will move the rocker member 18 into its reverse condition. This indirectly reverses the reversing gear 12. Now it is possible to continue moving the hand lever 31 as far rearward as desired and the further it is moved the further the motor throttle 10 will be open. This controls the speed at which the boat will travel in reverse.

In Fig. 3 a modified form of the invention has been disclosed which essentially differs from the prior form in the construction and operation of the rocker member and the control member of this mechanism. More specifically, the motor throttle control shaft 40 is turnably mounted through the casing 41. A lever 42 connects with the motor throttle control shaft 40 and with a connecting rod 43 which connects with the pivotally mounted hand lever 31. A lever 44 is mounted upon the motor throttle control shaft 40 and connects with a connecting rod 45 provided with collars 46 controlling the lever 11 of the motor throttle 10.

A control member 48 is mounted upon the motor throttle control shaft 40. This control member 48 is semi-circular. However, it is formed with a recess 49 at its top center. A rocker

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member 50 is mounted upon a shaft 51 which is provided with an arm 52 connecting with a connecting rod 53 which in turn connects with the lever 14 controlling the reverse gear 12. The rocker member 50 is provided with a roller 54 normally engaging the recess 49 of the control member 48. Spring operated plungers 55 engage the opposite sides of the rocker member 50 tending to hold it in its vertical or neutral position.

The operation of this form of the invention may be understood from the following:

When the hand lever 31 is in its neutral position the reverse gear 12 will be in neutral and the throttle 10 will be in its neutral position. When the handle 31 is moved forward a very slight amount the control member 48 will turn, moving the rocker member 50 a small distance laterally, as indicated by the dot and dash lines in Fig. 3. This motion of the rocker member 50 is indirectly transmitted to the reverse gear 12 to place it in its forward position. Now the hand lever 31 may be moved any additional amount forward which will cause the motor throttle control shaft 40 to turn and correspondingly move the control lever 11 of the throttle 10. However, the rocker member 50 will not be affected by this additional motion. The control member 48 has been shown in an intermediate forward position by the dot and dash lines in Fig. 3.

The hand lever 31 may be moved back to its neutral position and may be moved rearward to reverse the motor boat. When moved rearward, the control member 48 will turn rearwards swinging the rocker member 50 a slight distance in the other direction to that illustrated by the dot and dash lines in Fig. 3. Now the hand lever 31 may be moved a further amount rearward, for controlling the throttle 10. However, the reverse gear 12 will not be affected by this additional motion. It was reversed by the initial slight motion of the control member 48, and will remain in this condition until the control member 48 is moved back to its neutral position.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said rocker member being mounted at its center upon a shaft and having arms extending to each side of said shaft.

2. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said mo-

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tor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said control member being engageable with one or the other of said arms to throw the rocker member into its forwards or its reverse positions.

3. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said control member being engageable with one or the other of said arms to throw the rocker member into its forwards or its reverse positions, and then said rocker member is movable along the length of one or the other of said arms without further affecting the rocker member.

4. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said control member being provided with a roller which engages said rocker member.

5. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, and re-

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silient means for urging said rocker member into its neutral position.

6. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said controller member being arcuately shaped and being provided with a peripheral recess into which said rocker member engages.

7. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said controller member being arcuately shaped and being provided with a peripheral recess into which said rocker member engages, said rocker member being provided with a roller engaging said recess.

8. In a power control system including a motor throttle and a reverse gear, a rocker member having a neutral position and a forward position and a reverse position and connected with said reverse gear for the operation thereof, a motor throttle control shaft connected with said motor throttle, means for turning said shaft and including a hand lever having a neutral position and forward and reverse positions, and a control member mounted on said shaft and controlling said rocker member upon but the slightest forward or reverse movements of said hand lever, said controller member being arcuately shaped and being provided with a peripheral recess into which said rocker member engages, said rocker member being provided with a roller engaging said recess, and resilient means for urging said rocker member into a neutral position.

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