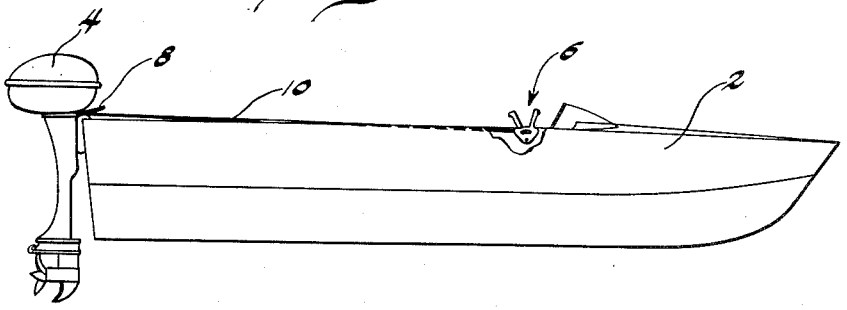
Oct. 13, 1953 C. W. FINKL 2,655,051

THROTTLE CONTROL

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Fig. 1



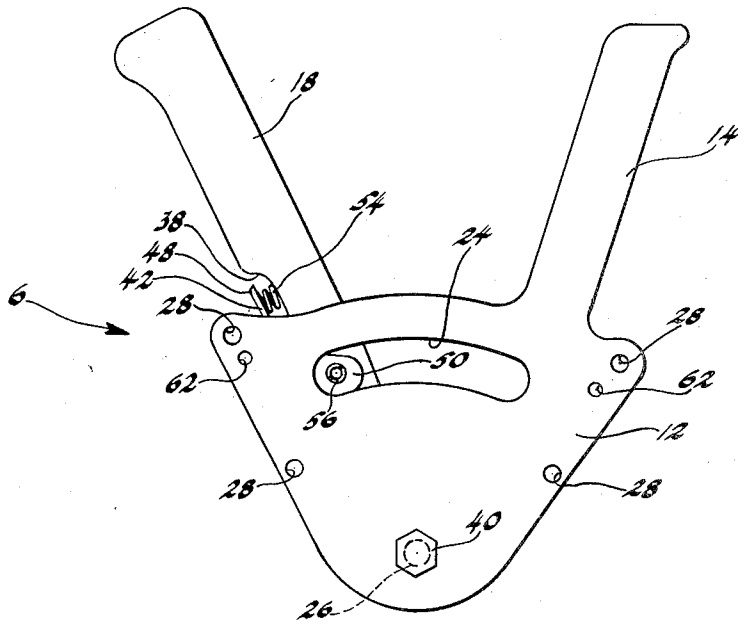


Fig. 2

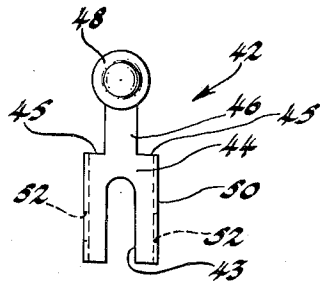


Fig. 3

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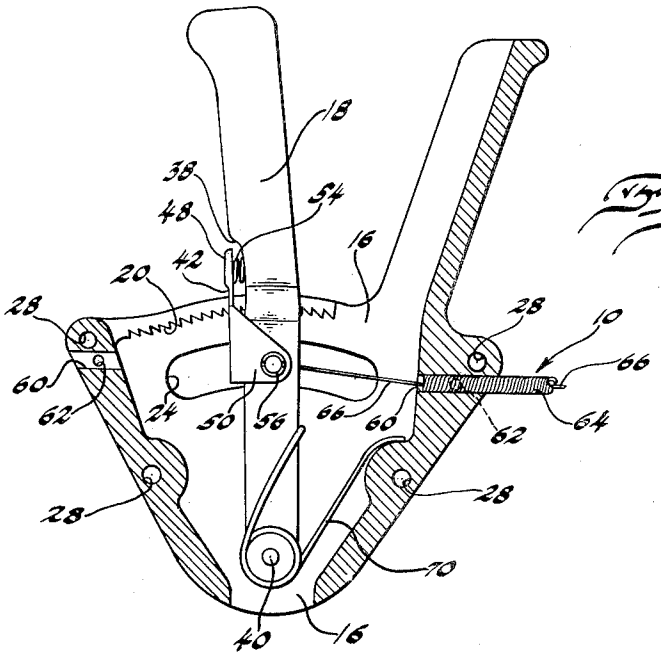


Fig. 4

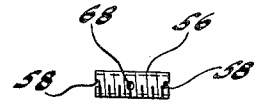


Fig. 7

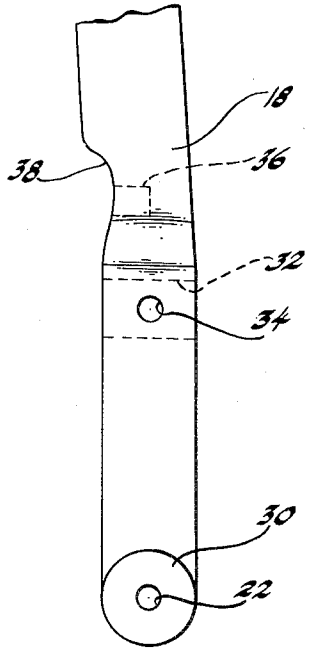


Fig. 6

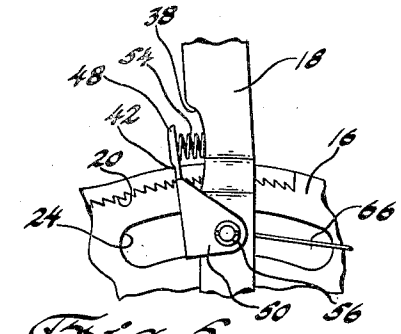


Fig. 5

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Patented Oct. 13, 1953

2,655,051

UNITED STATES PATENT OFFICE

2,655,051

THROTTLE CONTROL

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Application October 28, 1950, Serial No. 192,754

6 Claims. (Cl. 74—536)

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This invention relates to a throttle control and more particularly to an improvement in an automatically closing hand-operated throttle control for internal combustion engines.

The invention as shown in the accompanying drawings is particularly adapted for use with internal combustion engines associated with boats and more particularly with engines on outboard motor boats. However, it will be understood that this throttle control could be used, without departing from the inventive conceptions thereof, in conjunction with any one of several other types of engines having manually controlled throttles.

It is an object of this invention to provide a throttle control which under normal operating conditions will automatically close the throttle associated therewith when the operator removes his hand from the control.

It is another object of this invention to provide a throttle control having a throttle lever with means associated therewith which will control a Bowden mechanism wire secured to a throttle without substantially bending the Bowden wire between the end of the Bowdenite casing and throttle lever.

It is another object of this invention to provide a throttle control having a throttle lever which can be selectively locked by the operator in a plurality of open throttle positions.

It is a further object of this invention to provide a throttle control which may be mounted on either side of the operator in a condition to be operable in either position without alteration or adjustment of any of the parts thereof or the method of operation thereof.

It is still another object of this invention to provide a throttle which is reversible so that the throttle control may be operable to manipulate any throttle regardless of the direction of opening thereof, while mounted on either side of the operator.

Other objects and advantages of this invention will be apparent from consideration of the following specification, claims, and drawings, of which there are two sheets in which like reference characters are used to designate like parts and in which:

Figure 1 is a side elevational view of an outboard motor boat hull and motor showing the invention as associated therewith;

Figure 2 is an enlarged side elevational view of the invention as shown in Figure 1;

Figure 3 is a front elevational view of a portion of the invention as shown in Figure 2;

Figure 4 is a view similar to Figure 2 with a portion of the invention cut away to reveal the internal parts thereof;

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Figure 5 is an enlarged side elevational view of a portion of the invention shown in Figure 2;

Figure 6 is an enlarged side elevational view or a portion of the invention;

Figure 7 is an enlarged side elevational view of a portion of the invention.

Illustrated in Figure 1 is a speed boat outfit comprising a hull 2, an outboard engine 4, a throttle control (indicated generally at 6), a throttle member 8 associated with engine 4, and a Bowden mechanism wire 10 connecting throttle control 6 with throttle lever 8.

The throttle control 6 is comprised of a body casing 12 having a generally upstanding handle portion 14 and a hollow portion 16 (see Figure 4). Casing 12 is provided with a ratchet 20 formed in an arc around the centers of aligned apertures 26 which are formed in the lower portion of casing 12 and extend through the outside walls thereof that inclose hollow portion 16 thereof. Rotatable lever 18 is positioned within hollow portion 16 of casing 12 and is provided with an aperture 22 (see Figure 6) in the lower end thereof. Lever 18 is mounted within casing 12 by stud 40, which is positioned within apertures 26 of casing 12 and aperture 22 in the lower end of lever 18. Lever 18 is provided with a transverse enlarged lower portion 30 of a width slightly less than the width of hollow portion 16 of casing 12 so that portion 30 will fit snugly within casing 12. A hairpin-like torque spring 70, having its apex telescopically positioned around portion 30, is provided to constantly tend to rotate lever 18 in a counterclockwise direction, as shown in Figures 1 and 4, having one of its ends bearing against lever 18 and its other end bearing against one of the internal walls of casing 12. Lever 18 is further provided with a cut-out finger portion 38 formed in the rearward edge thereof. Blind hole 36 is formed in the rearward edge of lever 18 near the center of portion 38. Below portion 38 a rectangular aperture is provided through lever 18 from front to back and aligned internally threaded apertures 34 are formed transverse to and connecting with aperture 32.

Trigger-like lever 42 is mounted on lever 18. Lever 42 is provided with complementary spaced forwardly extending portions 50 bent at right angles to the rearwardly presented portion 44 thereof and portions 50 are provided with aligned transverse apertures 52 remote from portion 44. Lever 42 is carried on cylindrical member 56 (Figure 7) which is externally and internally

threaded and extends through aperture 34 in lever 18 and through the apertures 52 formed in lever 42. Member 56 is provided with notches 58 in the ends thereof for making the member more readily manipulated by tools such as a screw driver or similar tools. Further, member 56 is provided with a through aperture 68 extending through the walls thereof near the longitudinal center thereof. A compression spring 54 is positioned in blind hole 36 of lever 18 and bears against the back side of finger portion 48 of lever 42 to tend to rotate lever 42 in a counter-clockwise direction at all times, as shown in Figures 4 and 5. The rearward portion 44 of lever 42 is shaped horseshoe-like, having a cut out portion 43, and is provided with ledge-like upper edges 45 on either side of upstanding neck portion 46, which extends between portion 44 and finger portion 48 of lever 42. Edges 45 of lever 42 are of such a distance from the center of apertures 52 thereof and said center is of such a distance from ratchets 20 of casing 12 that the edges 45 will move within the arc defined by the lower tips of ratchet members 20 when lever 42 is rotated in a clockwise direction as shown in Figure 4. In this position edges 45 will contact ratchets 20 when lever 18 is permitted to move slightly in a counter-clockwise direction and such contact between edges 45 and ratchets 20 will prevent further rotation of lever 18 by spring 70 and thus the throttle lever 18 will be held in a constant position. Whenever lever 18 is moved in a clockwise direction spring 54 will rotate lever 42 in a counter-clockwise direction and thus move edges 45 of lever 42 outside the arc defined by the lower tips of ratchets 20 and thus spring 70 will be free to move lever 18 in a counter-clockwise direction. In other words, whenever the operator wishes to lock lever 18 in a selected position he merely presses on portion 48 of lever 42 to move edges 45 thereof into engagement with ratchets 20 and such engagement is automatically released when lever 18 is moved slightly in a clockwise direction to permit spring 54 to rotate lever 42 in a counter-clockwise direction. It will be noted that handle 14 and lever 18 form a pistol-like grip for the operator, making it very easy for the operator to manipulate lever 42 with the little finger of the hand operating the throttle.

Casing 12 is provided forwardly and rearwardly with substantially horizontal apertures 66, the centers of which are in alignment with the center of cylindrical member 56. Casing 12 is further provided with apertures 62 leading into apertures 60. The outside sheath 64 of the Bowden mechanism wire 10 is positioned within either of the apertures 66 and a set screw (not shown) is turned into the internally threaded aperture adjacent the sheath 64 into engagement therewith to secure the sheath within the aperture 60. The Bowden wire 66 is then extended into the portion 16 of casing 12 and the end is pushed into aperture 66 of cylinder member 56 and a set screw is turned into the threaded interior of member 56 against wire 66 to secure same therein. Thus an operating connection is formed between Bowden wire mechanism 10 and lever 18. It will be understood that Bowden wire mechanism 10 may be secured to throttle control 6 through either aperture 60 and thus the wire 66 may be operated either forwardly or rearwardly to operate a throttle lever such as lever 8 correctly regardless of whether lever 8 operates in a clockwise or counterclockwise direction. This is a very important feature inasmuch as the throttle levers of various makes of engines rotate in both a clockwise and counter-clockwise direction.

Casing 12 is further provided with transverse apertures 28 through which are positioned screws or similar fastening means for attaching throttle 6 to the hull of a boat or to the body of any other vehicle to which this throttle control may be adapted. Casing 12 is further provided with aligned apertures 24 in the side walls of casing 12 having upper and lower sides defining parallel arcs around the center of aligned apertures 26 of body casing 12. These apertures are provided so that the set screw positioned in the center of cylindrical member 56 and the cylindrical member 56 are readily accessible for securing Bowden wire 66 to lever 18 without removing lever 18 from casing 12. Further, casing 12 and the associated mechanisms are formed perfectly flat on either side so that either side may be positioned adjacent the member to which the throttle control is attached. Thus it will be seen that throttle control 6 may be positioned as shown in Figures 2 and 4 or may be reversed so that lever 18 is in the position that handle 14 is shown and handle 14 will then be in the position that lever 18 is shown. This is provided so that the throttle may be mounted to the right of the operator and the Bowden wire 66 may be pulled forwardly when lever 18 is moved toward handle 14 (This would be the case if the throttle control shown in Figure 2 were mounted in the position it is shown in Figure 2 in relation to Figure 1.) and if the throttle control 6 is reversed the Bowden wire 66 may be moved rearwardly when lever 18 is pulled in that direction toward handle 14. It will be readily understood that the same type of operation is possible when the lever is mounted to the left of the operator.

While I have described my invention in considerable detail, I intend this description to be an example only and not a limitation upon my invention, to which I make the following claims.

I claim:

1. In a control mechanism, a flat sided casing, an opening in said casing, an upstanding handle portion formed on said casing, a rotatable lever mounted in said opening movable to and from said handle portion, a resilient member constantly urging said lever away from said handle portion, connection means for securing a Bowden mechanism wire to said lever from a plurality of directions, a ratchet formed in said opening, and a latch mechanism carried by said lever and co-acting with said ratchet.

2. In a control mechanism, a casing having either side thereof in a flat condition, a support means for receiving either side of said casing, a downwardly extending opening formed in said casing, an upstanding handle portion formed on said casing, a lever having one of its ends rotatably mounted near the bottom of said opening and movable within said opening to and from said handle portion, a ratchet formed in said opening, and a rotatable latch mechanism carried by said lever and designed to selectively engage said ratchet.

3. In a control mechanism, a casing having both of its sides in a flat condition, a downwardly extending opening in said casing, an upstanding handle portion formed adjacent one end of said opening, a lever rotatably mounted at its one end in the lower portion of said opening and movable to and from said handle portion, a resilient member constantly urging said lever away from said handle portion, a ratchet formed in

said opening, a latch member rotatably carried by said lever and designed to selectively engage the ratchet, connection means for securing a Bowden mechanism wire to the lever from forward or rearward thereof and adjacent the latch, and a resilient member constantly urging the latch out of engagement with the ratchet.

4. In a control mechanism, a flat-sided casing, an opening extending downwardly in said casing, an upstanding handle portion formed on said casing adjacent one end of said opening, a lever rotatably mounted at its one end in the lower portion of said opening and movable to and from said handle portion, a resilient member constantly urging the lever away from the handle portion, a ratchet formed in the opening, a latch rotatably carried by the lever and designed to selectively engage the ratchet, a connection means associated with the lever for rotatably carrying the latch and for securing a Bowden mechanism wire to the lever from a plurality of directions, and a second resilient member constantly urging the latch out of engagement with the ratchet.

5. In a control mechanism, a flat-sided casing designed to be mounted with either such side adjacent a flat support, an opening extending downwardly through said casing, an upstanding handle portion formed on said opening, a substantially upstanding lever rotatably connected to said casing adjacent its lower end and movable to and from said handle portion, a resilient member constantly urging the lever away from the handle portion, ratchet members formed inside the casing adjacent either side of the lever, a rotatable latch carried by the lever and selectively engageable with the ratchet members, a second resilient member positioned between the lever and a portion of the latch constantly urging the latch out of engagement with the ratchet members, and a connection mechanism for rotatably carrying the latch and for securing a Bowden mechanism wire to the lever from a plurality of directions.

6. In a control mechanism, a flat-sided casing having an opening extending from top to bottom thereof, an upstanding handle portion formed adjacent one end of said casing, a lever rotatably mounted at its lower end to the casing adjacent the bottom of the opening therein and movable to and from the handle portion, ratchet members formed in the casing adjacent the top of the opening and on either side thereof, a resilient member constantly urging the lever away from the handle portion, a latch mechanism rotatably carried on the lever adjacent the ratchet members and selectively engageable therewith, a second resilient member positioned between the lever and a portion of the latch and constantly urging said latch out of engagement with the ratchet member, and a connection mechanism securing the latch to the lever and connecting a Bowden mechanism wire either to the side of the lever from the direction of the handle portion or from the direction of the side of the lever remote from that side adjacent the handle portion.

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