April 15, 1958 F. T. IRGENS 2,830,463

WOBBLE GRIP CONTROL

Original Filed May 22, 1950

Fig. 1

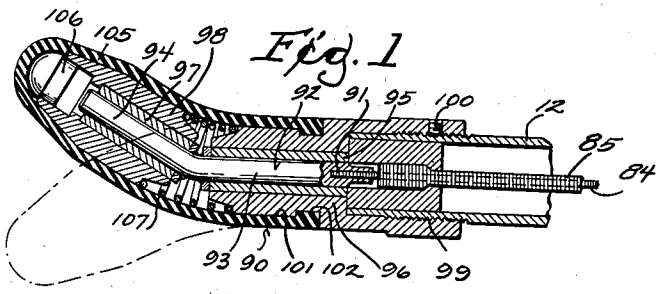


Fig. 4

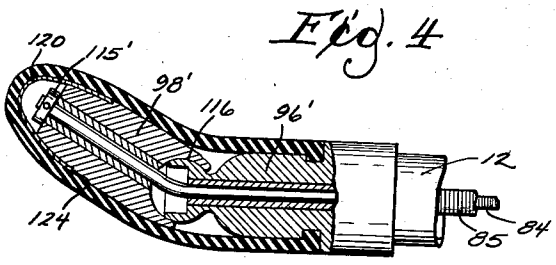


Fig. 2

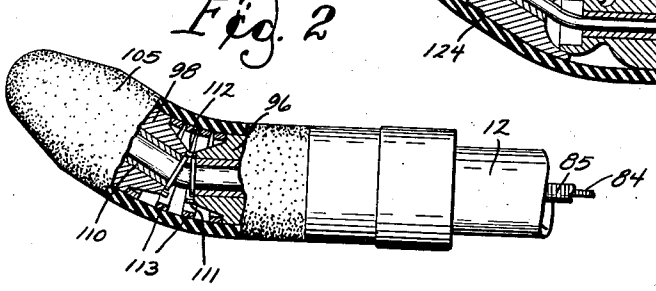


Fig. 5

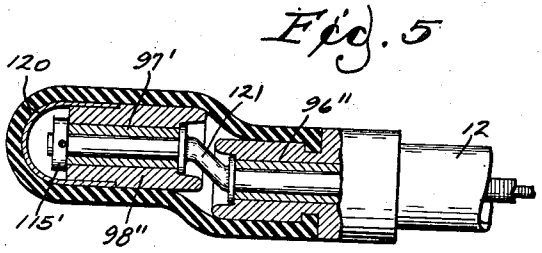
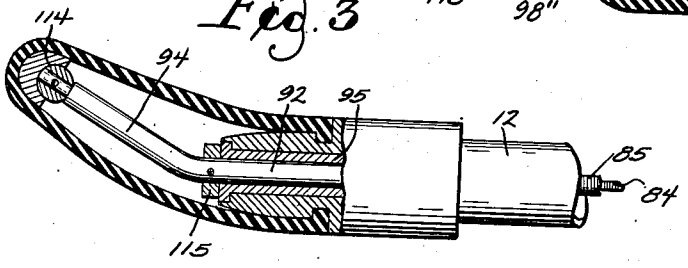


Fig. 3



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WOBBLE GRIP CONTROL

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Original application May 22, 1950, Serial No. 163,523, now Patent No. 2,651,296, dated September 8, 1953. Divided and this application May 14, 1953, Serial No. 355,136

8 Claims. (Cl. 74—545)

This invention relates to a wobble grip control. It is particularly useful for incorporation in a tiller handle of an outboard motor or the like but it has other application.

The device comprises, in the embodiments illustrated, a flexible grip at the end of a lever which has one portion mounted on the lever and another portion mounted on some type of crank to be oscillatable or rotatable or movable with a wobbling motion for the rotation of a control element extending through the lever. The present application is a division of my application 163,523, entitled Control Devices, and filed May 22, 1950, now Patent 2,651,296 granted September 8, 1953.

Fig. 1 is a view taken in section through the hand grip portion of a steering lever of an outboard motor, showing the parts of the control device incorporated therein.

Figs. 2, 3, 4, and 5 are views similar to Fig. 1 showing modified embodiments of the invention.

By way of exemplifying the type of control element which may be operated through the wobble grip mechanism herein disclosed, I have shown a conventional flexible drive cable 84 rotatable within a sheath 85 mounted within the handle lever 12.

The shaft 84 has a positive connection at 91 with a crank 92 which, in the embodiment shown in Fig. 1, comprises one portion 93 in axial alignment with the lever 12 and an obliquely extending portion 94 at an obtuse angle to portion 92. Portion 93 of the crank is journaled in a bushing 95 carried by the handle cap 96 at the end of lever 12. The oblique terminal portion 94 of crank 92 has a separate bearing in bushing 97 which is mounted in a handle extension 98 free of any direct positive connection with handle cap 96.

A tubular hand grip 105 of some resilient material such as rubber has an internal flange engaged in the channel 102 of the lever cap 96. The grip is sleeved tightly at 101 over the generally cylindrical portion of the handle cap beyond the groove and may be cemented thereto. It may also be cemented to the handle extension 98. Its closed end is supported on a thrust member 106 against which the end of the crank portion 94 axially seats, and for the support of which the handle extension 98 is shouldered.

To provide support for the flexible grip between the handle cap 96 and the handle extension 98, I desirably use a short length of helical spring 107 seated at its ends about reduced terminal portions of cap 96 and extension 98.

Without in any manner relaxing control of bodily movement of the lever 12, an operator grasping the grip 105 can wobble or gyrate the free end portion thereof about the axis of crank portion 92, as has been indicated by the dotted line position of the free end portion of the grip in Fig. 1. The gyratory movement of the grip will rotate the crank to communicate rotative movement to the flexible shaft or cable 84 for the operation of any remote parts.

In the construction of Fig. 2, the terminal end portions of the handle lever cap 96 and the handle extension 98 have terminal crown teeth 111 engaged at 112. Another variation from the disclosure of Fig. 1 consists in the substitution of spring rings 113 for the spring 107. These two features are separate and either may be used independently of the other. In this device, as in the device of Fig. 1, the rotation of the crank is achieved without any rotation of the grip. The grip simply has a wobbling motion and the crank rotates within the grip. The meshing crown gear teeth disclosed in Fig. 2 positively preclude the handle extension 98 and grip 105 from rotating with respect to handle cap 96.

In the construction shown in Fig. 3, there is no handle extension. A ball and socket joined at the end of the crank element 94 is used at 114 to provide thrust support for the closed end of the grip 105 to permit rotation of the crank without rotation of the grip when the latter is given a gyratory wobbling motion. This figure also suggests the possibility of using a thrust collar at 115 pinned to the end of the portion 92 of the crank.

Fig. 4 suggests how the handle extension 98′ can have a ball and socket joined at 116 securing it for gyratory movement with respect to the handle cap portion 96′. Here the thrust collar is located at 115′ at the end of the gyratory portion of the crank and a thrust cap at 120 supports the closed ends of the grip, being seated against a shoulder 124.

The construction of Fig. 5 shows an alternative form of crank at 121 beyond which the bushing 97′ rotates within handle extension 98″. The thrust cap 120′ is similar to the thrust cap 120, and the handle cap 96″ is similar to the handle caps shown at 96 and 96′ in previously described embodiments.

Particular usage of the mechanism herein disclosed has been exemplified in the above entitled application of which the present case is a division. Here, it is only necessary to point out that in all of these embodiments a hand grip bodily movable with a lever, at the free end of which it is mounted, is supported for independent gyratory but nonrotative movement for the rotation of a control shaft extending through or along such lever.

I claim:

1. The combination with a swingable lever having a hollow flexible grip at its end, of a shaft bearing mounted on the lever and a second shaft bearing disaligned from the first bearing and mounted in the grip, a shaft having disaligned bearing portions mounted in the respective bearings, said shaft having an extension along said lever rotatable upon the gyratory motion of a portion of said grip beyond said lever, the external diameter of the grip about said second shaft bearing being substantially the same as the external diameter of the grip about the first shaft bearing, and separate adjustable means respectively connected to said shaft and to said lever for adjustment thereby.

2. The device of claim 1 in which the disaligned portions of the shaft are at an oblique angle with respect to each other.

3. The device of claim 1 in which the disaligned portions of the shaft are offset and connected by an intervening crank portion of said shaft.

4. The device of claim 1 in further combination with resilient means supporting said grip between the aforesaid bearings, said second shaft bearing being biased by said resilient means away from said first shaft bearing whereby to tension said grip therebetween.

5. The device of claim 1 in further combination with meshed crown tooth means on the respective bearings, said crown tooth means comprising means to preclude rotation of the second mentioned bearing during gyratory movement of said grip.

6. The device of claim 1 in further combination with

shaft encircling means maintaining said bearings in spaced relation, said means comprising collars with which the respective bearings are engaged.

7. A wobble grip control for a control handle, said handle comprising a tubular frame having a bore and a bore bearing for a straight portion of a wobble shaft, a wobble shaft with a straight portion receivable in said bore bearing and having a wobble shaft extension terminated in spaced relationship to said frame in an anti-friction bearing member; an anti-friction cap mounted upon said anti-friction bearing member, and a tubular resilient grip member having a closed end to receive said anti-friction cap, said tubular resilient grip being interengaged with said frame whereby to place said resilient grip in longitudinal tension in all positions of wobble motion of said wobble shaft, said grip member and said tubular frame forming a continuous handle for ready manipulation for control of one function by bodily moving said handle and for control of another function by wobbling said wobble grip with respect to said frame.

8. The grip of claim 7 wherein the straight portion of the wobble shaft is provided with a thrust bearing to bear against the frame and resist the tension of said resilient grip.

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