March 24, 1959 G. A. GUIDO 2,878,981

LIFE CHAIN RETRACTOR

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FIG. 1

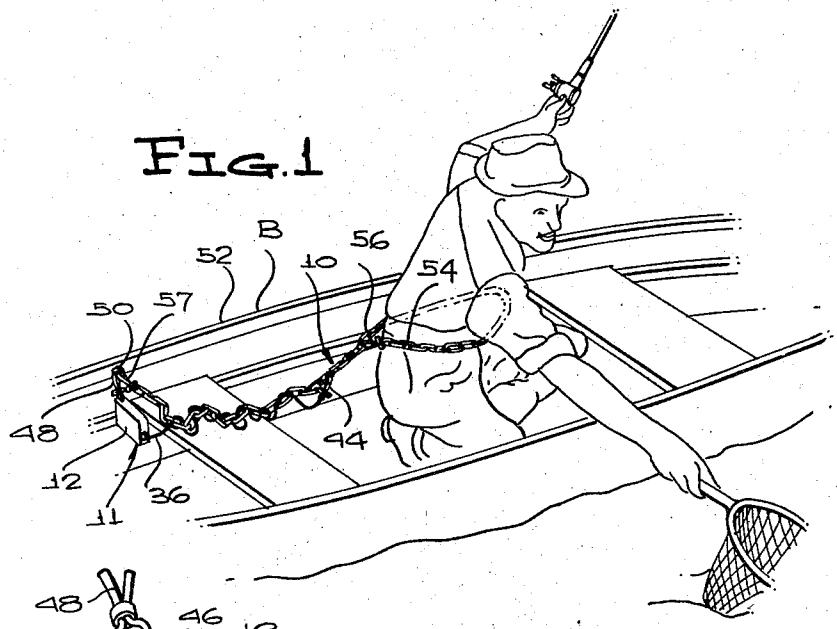


FIG. 2

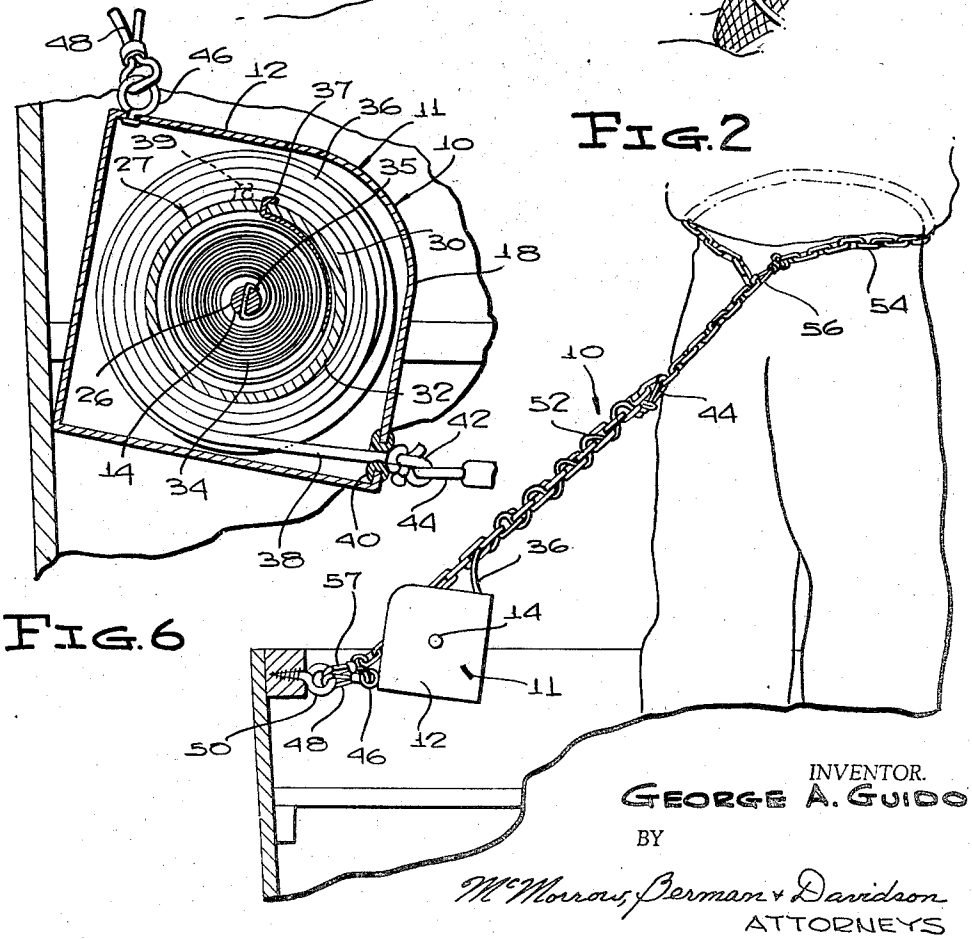


FIG. 6

INVENTOR.
GEORGE A. GUIDO
BY
McMorrow, Berman & Davidson
ATTORNEYS

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FIG. 3

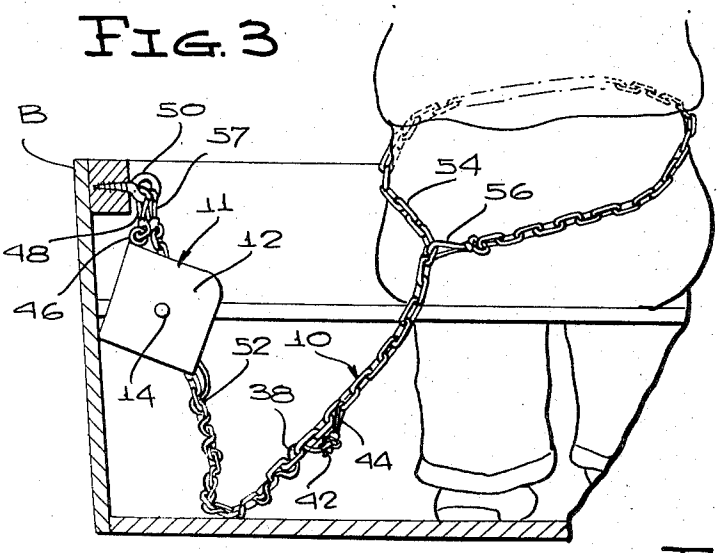


FIG. 4

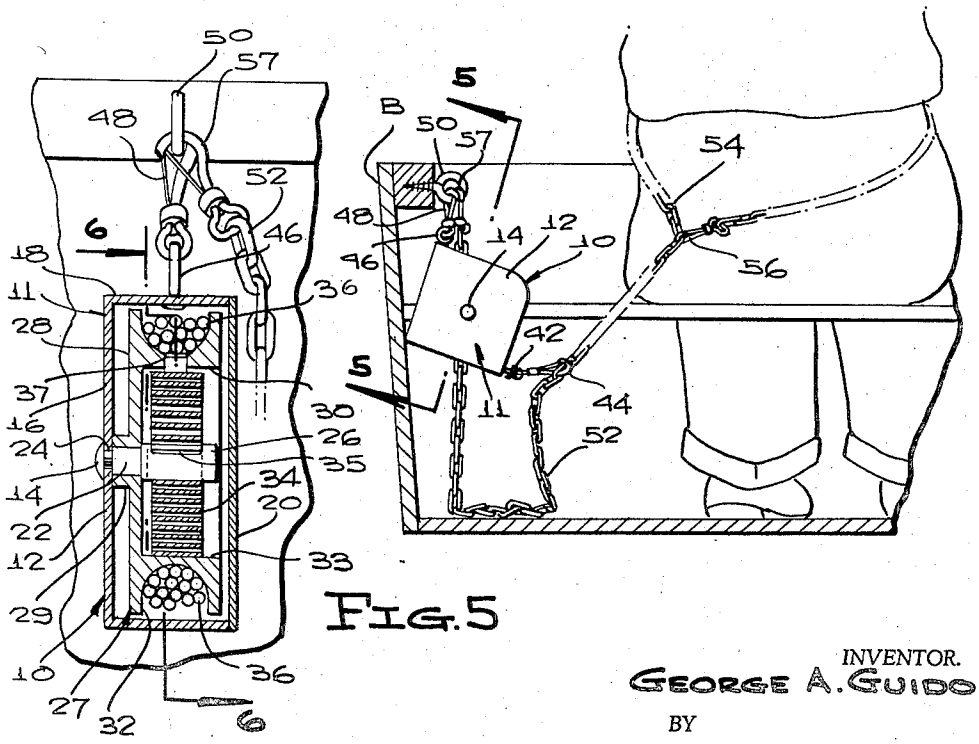


FIG. 5

INVENTOR.
GEORGE A. GUIDO
BY
McMorrow, Berman & Davidson
ATTORNEYS

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LIFE CHAIN RETRACTOR

George A. Guido, Syracuse, N.Y.

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4 Claims. (Cl. 227—49)

This invention relates generally to life chains or equivalent devices, and more particularly has reference to a retracting means for a device of this nature.

A life chain comprises a length of chain, one end of which is anchored to a suitable support, with the other end being extended about the waist of a user. For example, a life chain can be used in a small boat, by a fisherman. In this instance the chain would be anchored at one end to an eye-bolt or equivalent means secured to the hull, while the other end of the chain can be passed about the waist of the fisherman, so that in the event the fisherman should accidentally fall overboard, he may pull himself or be pulled back to safety.

An undesirable feature of the device described above resides in the fact that an excessive amount of slack is required in the chain, for the purpose of permitting normal physical activities by the user. The fisherman, thus, may at different times be sitting, standing, or otherwise moving about in the boat. To leave sufficient slack for these activities, the fisherman finds it necessary that a substantial part of the chain be left loose in the bottom of the boat, where it may become wet and entangled with gear and constitute, in general, a source of annoyance and inconvenience.

The main object of the present invention, accordingly, is to provide a retracting device for a life chain, which will be designed to eliminate slack between the user at a selected location along the length of the life chain, so that there will be maximum comfort, so far as the user is concerned, accompanied by minimum annoyance and inconvenience.

Another object is to provide a retracting device of the character stated which will be simple in construction, and will be usable in association with conventional life chains.

A further object of importance is to provide a life chain retractor that can be attached to a life chain at any location along the length of said chain.

Still another object is to provide a combination retracting device and life chain, having desirable characteristics as regards the manner in which the complete assembly can be connected to a suitable support, and adjusted for use in a particular manner desired by the individual.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a perspective view showing the device in association with a life chain, as it appears when in use;

Figure 2 is a view on an enlarged scale, showing the manner in which the device operates when the fisherman stands up in the boat;

Figure 3 is a view like Figure 2 illustrating the device with the fisherman seated;

Figure 4 is a view like Figure 3 showing an alternative mode of application of the device;

Figure 5 is a still further enlarged sectional view on line 5—5 of Figure 4; and

Figure 6 is a sectional view, on the same scale as Figure 5, taken substantially on line 6—6 of Figure 5.

Referring to the drawing in detail, designated generally at 10 is a life chain. The device 11 used for retracting the chain includes a housing 12, said housing being of approximately rectangular configuration and being of flattened formation as shown to best advantage in Figure 1.

The housing 12 has, in a centered position therein, a shaft 14 extending transversely between the opposite side walls 16, 20 of the housing (see Figure 5). Shaft 14 is secured to the side wall 16 and terminates short of the wall 20, in the illustrated embodiment of the invention.

The device also includes a connecting wall 18 extending through the full circumference of the housing, and connecting the walls 16, 20. Wall 20 is formed separately from wall 18 with wall 18 being integral with wall 16, so that wall 20 can be removed if necessary to provide access to the interior of the device.

The shaft 14, as seen in Figure 5, includes a reduced portion 22 of circular cross-section, integral at one end with a still further reduced, non-circular part 24 that engages in a mating opening of wall 16 and that is integral with the externally disposed head of the shaft. Portion 22, at its other end, is integral with an enlarged main portion 26, also of circular cross-section (see Figures 5 and 6).

A drum generally designated 27 includes at one side thereof a circular, planiform plate 28 centrally formed with a hub 29 having a circular opening receiving portion 22, and freely rotatable on said portion 22. At its margin, plate 28 is integral with a continuous, circumferential flange 30, having a deep recess or groove 32 of semi-circular cross-section.

Flange 30 extends laterally from plate 28 in one direction, so as to bound a circular, deep laterally opening recess 33 defined in the drum through the provision of the flange 30. Shaft portion 26 extends centrally within recess 33, and in the recess there is provided a spirally wound spring 34, one end 35 of which extends through a diametrically disposed slot of shaft portion 26, to anchor the spring at this end of the shaft portion. Shaft portion 26, of course, does not rotate, due to the provision of the non-circular shaft part 24 engaging in a mating opening of wall 16.

The spring 34, at its outer end, is anchored to the flange 30, through the provision of a hook-like end portion or connector bracket 37 of the spring, engaging in a slot of the flange 30.

Wound upon the drum in recess 32 is an elongated, small diameter, strong flexible element or cable, 36, one end of which is engaged with a hook 39 (Figure 6) secured to flange 30 within recess 32.

Cable 36 is wound upon the drum as shown in Figure 6, and its outer end 38 extends through an opening of a grommet 40 carried by wall 18, with said end 38 being knotted at 42, exteriorly of the housing, to a conventional snap hook 44.

Secured to the top portion of housing 12 is an eye 46, to which is connected a snap hook 48 attachable to an eye screw 50 (Figure 3) attached to a selected portion of the boat B.

A life chain 52, at one end, is adapted to be extended about the waist of the wearer to provide a loop 54, and at this end of the chain there is provided a snap hook 56 connectable to any selected length of the chain to close the loop. The loop can thus be of any selected size to fit the user with maximum comfort.

At its other end, the chain has a snap hook 57, which is connectable to the eye screw 50 alongside the snap hook 48.

In use of the device, the cable **36** can be extended out of the housing to a selected location, against the restraint of the spring **34** which resists, yieldably, the unwinding of the cable from the drum. The cable can be threaded through each link of the chain in the manner shown in Figures 1 and 3, starting with a link immediately adjacent the housing and terminating at any selected location along the length of the chain between loop **54** and the housing. If desired, one can thread the cable through every other chain link, every third link, etc. In any event, one selects a link of the chain, according to his particular desires, to which snap hook **44** is to be connected. The entire portion of the length of the chain along which the cable **36** extends is thus pulled back toward the housing, and in effect is bunched up or contracted longitudinally, due to the fact that the spring **34** will retract into the housing as much of the cable as possible.

Therefore, the slack in the chain will be in effect eliminated to a considerable extent, so that the chain will not dangle loosely in the boat, in places where it can catch in fishing gear, etc.

However, of course, if the user should stand up, as for example in Figure 2, the cable **36** will pull out of the housing against the restraint of the spring, once again, and the chain will be extended as necessary to permit maximum freedom of movement so far as the user is concerned.

It thus becomes apparent that automatically, the cable in effect contracts the life chain, with the chain being extendable, however, as necessary according to the physical activities of the user.

In Figure 4 there is shown an alternative method of using the device. In this instance, the cable **36** is not threaded through the links of the chain. Rather, the snap hook **44** is merely connected to a selected chain link, and the portion of the chain between said link and the snap hook **57** is permitted to drop loosely within the boat. The portion of the chain between loop **54** and snap hook **44**, however, is maintained in a substantially taut condition, so that in this instance the elimination of the slack is in close proximity to the user. A particular user of the device may prefer this arrangement, and it is mainly important to note that both the Figure 3 and the Figure 4 arrangements are readily possible, without requiring modification or redesign either of the life chain or of the retractor.

Should more than one person in the boat be using devices of the type illustrated, they can be attached to eye screws **50** located at opposite sides of the boat, to prevent entanglement of the life chains worn by different persons.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. A life saving device comprising an anchoring element adapted for connection to a support structure; an elongated flexible member having a direct connection at one end to said element in contact therewith and terminating at its other end in a safety belt proportioned to encircle the body of a user; a housing having a direct connection at one side to said element in contact therewith; a drum rotatably mounted in said housing; and a flexible element wound on the drum and having one end projecting from the other side of said housing, said flexible element being a piece separate from the flexible member and having a direct connection at said one end there-

of to the flexible member in contact therewith, at a location intermediate the ends of the member, said last named connection engaging said one end of the flexible element against slippage from said location in a direction longitudinally of said flexible member, the drum being under continuous spring bias tending to rotate the same in a flexible-element-winding direction.

2. A life saving device comprising an anchoring element adapted for connection to a support structure; an elongated flexible member having a direct connection at one end to said element in contact therewith and terminating at its other end in a safety belt proportioned to encircle the body of a user; a housing having a direct connection at one side to said element in contact therewith; a drum rotatably mounted in said housing; and a flexible element wound on the drum and having one end projecting from the other side of said housing, said flexible element being a piece separate from the flexible member and having a direct connection at said one end thereof to the flexbile member in contact therewith, at a location intermediate the ends of the member, said last named connection engaging said one end of the flexible element against slippage from said location in a direction longitudinally of said flexible member, the drum being under continuous spring bias tending to rotate the same in a flexible-element-winding direction, the anchoring element comprising an eye to which the housing and said one end of the flexible member are connected in side-by-side relation independently of each other.

3. A life saving device comprising an anchoring element adapted for connection to a support structure; an elongated flexible member having a direct connection at one end to said element in contact therewith and terminating at its other end in a safety belt proportioned to encircle the body of a user; a housing having a direct connection at one side to said element in contact therewith; a drum rotatably mounted in said housing; and a flexible element wound on the drum and having one end projecting from the other side of said housing, said flexible element being a piece separate from the flexible member and having a direct connection at said one end thereof to the flexible member in contact therewith, at a location intermediate the ends of the member, said last named connection engaging said one end of the flexible element against slippage from said location in a direction longitudinally of said flexible member, the drum being under continuous spring bias tending to rotate the same in a flexible-element-winding direction, said flexible member comprising a chain, the flexible element being of small cross-sectional area and being loosely threaded through a plurality of the links of said chain.

4. A life saving device comprising an anchoring element adapted for connection to a support structure; an elongated flexible member having a direct connection at one end to said element in contact therewith and terminating at its other end in a safety belt proportioned to encircle the body of a user; a housing having a direct connection at one side of said element in contact therewith; a drum rotatably mounted in said housing; and a flexible element wound on the drum and having one end projecting from the other side of said housing, said flexible element being a piece separate from the flexible member and having a direct connection at said one end thereof to the flexible member in contact therewith, at a location intermediate the ends of the member, said last named connection engaging said one end of the flexible element against slippage from said location in a direction longitudinally of said flexible member, the drum being under continuous spring bias tending to rotate the same in a flexible-element-winding direction, said flexible element being spaced laterally from the flexible member throughout the length of the flexible element except at the location of its connection to the flexible member.

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