D. D. O'CONNELL.

AUTOMATIC RELEASING GEAR.

APPLICATION FILED JULY 13, 1910.

1,013,510. **Patented Jan. 2, 1912.**

Fig. 1.

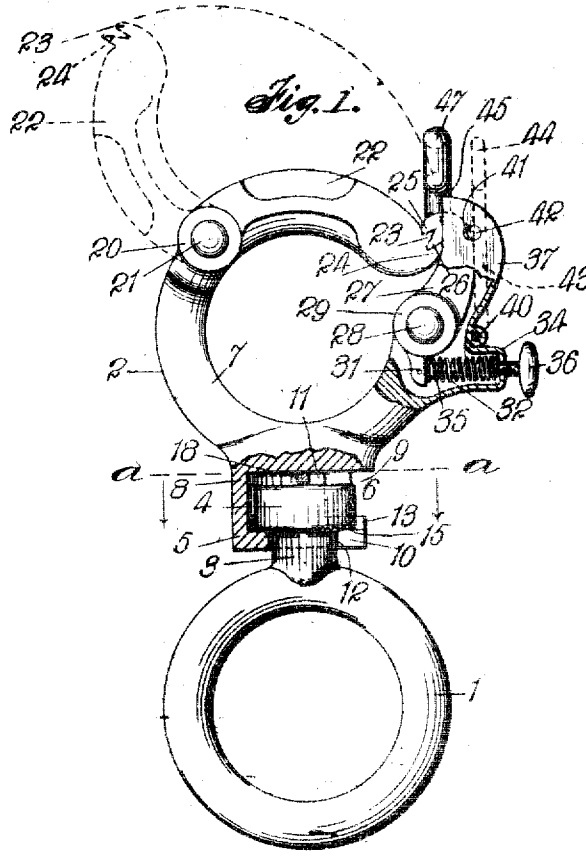


Fig. 2.

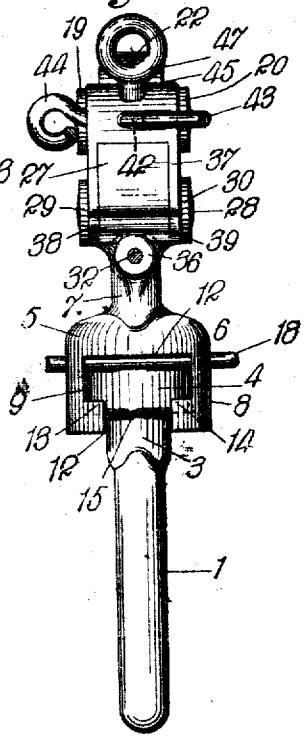


Fig. 4.

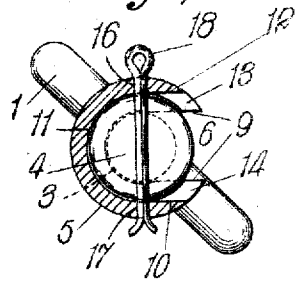
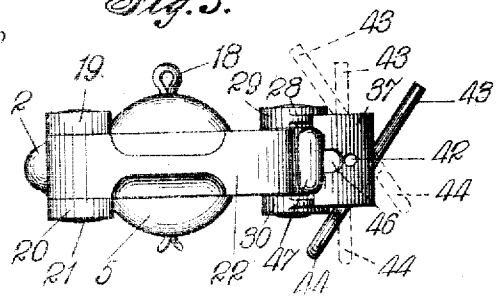


Fig. 3.



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AUTOMATIC RELEASING-GEAR.

1,013,510. Specification of Letters Patent. Patented Jan. 2, 1912

Application filed July 13, 1910. Serial No. 571,706.

To all whom it may concern:

Be it known that I, DANIEL D. O'CONNELL, a citizen of the United States, and a resident of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Automatic Releasing-Gears, of which the following is a full, clear, and exact specification.

This invention relates to a class of gears adapted more particularly for use in connection with the davits of ships and like vessels for lowering boats therefrom into the water and which serves to permit the boat to be automatically cast loose upon the surface of the water.

My invention has for its object to provide a releasing gear or device of efficient form and construction adapted to be held to a block and tackle of the davits of ships or other like vessels and which may be readily connected to suitable means provided at the thwarts of a lifeboat or other boats whereby the same will be automatically released from engagement with the block and tackle in a manner to safely lower the boat into the water, thus overcoming the danger of capsizing the boat especially during rough and high-seas as incident to such devices ordinarily in use.

Another object of the invention is to provide a form of releasing gear comprising mainly two members having means to permit said members to revolve with relation to each other so that either the bow or the stern of the boat may be disposed in the desired direction when being lowered in the water.

A further object of the invention is to provide locking means to readily connect the boat to the block and tackle, and to provide means for positively releasing said locking means from locked engagement whereby the boat may be cast loose safely upon the surface of the water.

A practical embodiment of the invention is represented in the accompanying drawing forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, the said invention being more fully described hereinafter and then pointed out in the appended claims.

In the drawing Figure 1 is an elevation, partly in section, of one form of device embodying my invention. Fig. 2 is an end view of the device. Fig. 3 is a top plan thereof, and Fig. 4 is a cross-section taken on the line A—A of Fig. 1.

My releasing gear consists mainly of two members 1 and 2, and to the block and tackle of the davit of a ship or like vessel may be connected in any suitable manner the member 1. The member 1 may be in the shape of a ring, as shown; or of any other preferred form, and upon one of the edges thereof is provided a neck 3 having a head 4 adapted to fit in a casing 5 of the member 2. A form of swivel or means 6 is thereby provided to connect the members 1 and 2 to permit said members to move in relative relation so that the boat when being lowered over the sides of the vessel may be swung in the desired direction.

The member 2 has substantially a semi-circular body 7, and projecting from the peripheral edge of said body is the casing 5 of the swivel 6, and said casing has a wall 8 in which is a rectangular opening, as 9. An integral or separately formed cap 10 is provided upon the wall 8 to form within the casing 5 an annular chamber 11, and in the cap 10 is an opening or slot, as 12, which communicates with the annular chamber 11 and also the rectangular opening 9. The opening 9 of the chamber 11 is larger than the slot 12 and by this formation retaining lugs or flanges 13 and 14 are provided upon the wall 8 at the points of communication between the opening 9 and slot 12. As illustrated, the head 4 of the member 1 is circular in form and is larger in diameter than the neck 3 so as to provide an annular shoulder 15. The annular chamber 11 is also larger in dimensions than the circular head 4 in order to allow said head to be freely admitted through the opening 9 and into the annular chamber 11 at the same time permitting passage of the neck 3 into the slot 12. When the head 4 is disposed within the chamber 11, the annular shoulder 15 will rest upon the inner surface of the cap 10 and said head will be held against longitudinal displacement between the flanges 13 and 14 and the inner surface of the wall 8. To prevent vertical displacement of the head 4 when arranged in the annular chamber 11 the wall 8 is apertured, as at 16, and diametrically opposite in said wall is formed an aperture 17. A dowel

pin 18 is passed through the aperture 16 and directed over the surface of the head 4 and through the aperture 17.

As a means whereby a boat may be readily connected to my gear and held securely in suspension while being lowered from the davits of a ship, upon one end of the circular body 7 of the member 2 are provided lugs, as at 19 and 20, and between said lugs is hinged upon a pintle 21 a retaining arm or latch 22. The retaining arm 22 is preferably curved and upon the opposite end of said arm are formed a plurality of fingers 23 and 24. The fingers 23 and 24 are disposed in an opposite direction to the curvature of the retaining arm 22, and are adapted to be engaged by a like number of catches or fingers 25 and 26 of a locking element 27. The locking element 27 is preferably in the form of a curved arm which is pivotally held upon a bolt 28 between two lugs, as 29 and 30, provided upon the end of the body 7 opposite to the end hinged to the latch 22. The catches 25 and 26 are curved in an opposite direction to the fingers 23 and 24 so as to grip said fingers in a hook-like manner for locking the latch 22. By arranging the fingers 23 and 24 and catches 25 and 26 as described, it is clear, that as the force of the pull upon the davits' tackle increases so will the latch 22 and locking element 27 hold tighter in locking engagement. Projecting from the hinged end of the locking element 27 is a lug 31 to which is pivoted one end of a rod 32 guided through an opening in a recessed boss, as 34, provided upon the outer peripheral edge of the body 7 of the member 2. Arranged in the recess of the boss 34 and encircling the rod 32 is a spring 35 serving normally to force the lug 31 and locking element 27 in a direction to automatically throw the catches 25 and 26 out of engagement with the fingers 23 and 24 of the latch 22. A knob, as 36, is arranged upon the end of the rod 32, and by manually pressing said knob inwardly the locking element 27 will be forced out of engagement with the latch 22 in case the spring 35 fails to release the boat from the gear.

In order to further insure a positive locking engagement between the latch 22 and locking element 27 when the boat is held in suspension a casing 37 is provided to inclose the latch 22. The casing 37 is formed with a bifurcated end, the prongs 38 and 39 of which are hinged by a bolt 40 to the body 7 of the member 2 adjacent to the hinged end of the locking element 27, and said casing is curved similarly to the locking element 27 so as to overlap the catches 25 and 26. One edge of the locking element 27 is transversely grooved, as at 41, and in the casing 37 is formed a plurality of openings, as 42, which are disposed vertically, transversely and cross-wise respectively through said casing. Through one of the openings 42 may be passed a pin, as 43, which are adapted to engage the groove 41 of the locking element 27 and hold said element against releasing movement from engagement with the latch 22. Upon one end of the pin 43 is formed an eye or hook 44 to which may be attached a line or cable so that when the boat is lowered into the water said line will be drawn taut and will extract said pin from the opening 42 no matter in what direction the boat may be positioned. As an additional means to coöperate with the spring 35 for automatically releasing the latch 22 to cast the boat loose I provide upon the free end of the locking element 27 a short stud or arm 45 which is disposed through a slot 46 provided in the free end of the casing 37. Formed upon the arm 45 is a weight or heavy ring 47 which is positioned out of the axial center of the pivoted end of said arm, and by this arrangement it is evident that the catches 25 and 26 will be thrown out of engagement with the fingers 23 and 24 should the tension of the spring 35 be insufficient to move the locking element 27 for releasing the retaining arm 22. It is also clear that a line or cable may be fastened to the ring 47 and which when pulled will move said ring and the arm 45 in the slot 46 to manually unlock if desired the curved arm 27 from the latch 22.

It will be understood that my releasing gear may be of any desired shape or size, and that changes may be made in the forms and proportions of the various parts thereof without departing from the spirit and scope of the invention, therefore I do not wish to be limited to the particular design of gear herein described and set forth.

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

1. A releasing gear of the character described, comprising a ring adapted to be fastened to a line or cable and having a neck formed on the outer peripheral edge thereof, and provided with a head of larger diameter than the neck so as to form a shoulder; a casing having an annular wall and a substantially rectangular opening formed therein; a cap formed upon one end of the annular wall to provide a chamber within the casing and having an opening communicating with the rectangular opening, said openings being of a size to receive the neck and head of the ring; oppositely arranged apertures formed in the annular wall; a pin guided through one of the apertures and directed over the upper surface of said head and through the second aperture; a substantially semi-circular body provided upon the casing opposite to said cap; a curved retaining arm hinged to one end of said body and having a plurality of fingers disposed oppo-

sitely to the curvature of the arm; a curved locking arm hinged to the opposite end of the body and provided with a plurality of catches disposed in an opposite direction to said fingers whereby the catches and fingers may lock in hook-like engagement; and means adapted to automatically release the curved retaining arm from the curved locking arm.

2. A releasing gear of the character described, comprising a ring and a semi-circular body; means for detachably connecting the ring and said semi-circular body so as to revolve in relative relation; two lugs carrying a pintle formed upon one end of the semi-circular body; a curved retaining arm having one end thereof pivotally held upon the pintle between said lugs; a plurality of fingers formed upon the opposite end of the retaining arm and disposed in an opposite direction to the curvature of said retaining arm; two lugs carrying a bolt formed upon the opposite end of the semi-circular body; a locking arm pivotally held upon the bolt between said lugs; a plurality of catches formed upon the locking arm and disposed in an opposite direction to the fingers of the retaining arm whereby the catches and fingers may lock in hook-like engagement; a weight formed upon the free end of the locking arm to unlock the locking arm and retaining arm from locked engagement.

3. In a releasing gear the combination of a semi-circular body; a retaining arm pivotally held to one end of the semi-circular body and having curved fingers formed upon the opposite end thereof; a locking arm pivotally held to the opposite end of the semi-circular body and also having curved fingers formed upon the opposite end thereof, said curved fingers being disposed so as to grip the curved fingers of the retaining arm in hook-like engagement; a lug formed upon the hinged end of the locking arm; a rod pivotally held to the lug; a spring encircling said rod and normally serving to force the catches of the locking arm and fingers of the retaining arm out of locked engagement; a knob formed upon the free end of said rod to manually move the rod for unlocking the locking arm from the retaining arm; and means formed upon the semi-circular body by which the gear may be connected to a block and tackle or a boat.

4. In a releasing gear the combination of a semi-circular body having two lugs formed upon one end thereof and carrying a pintle therethrough; a curved latch having one end pivotally held upon the pintle between said lugs; a plurality of fingers formed upon the opposite end of the latch and disposed in an opposite direction to the curvature of said latch; two lugs formed upon the opposite end of the semi-circular body and carrying a bolt therethrough; a curved locking arm having one end pivotally held upon the bolt between said lugs; a plurality of catches formed upon the opposite end of the curved locking arm and disposed in an opposite direction to the fingers of the latch so as to grip said fingers in a hook-like manner; a transverse groove formed in one edge of the curved locking arm; a curved casing hinged upon the semi-circular body adjacent to the hinged end of the curved locking arm and having a plurality of openings for passage therethrough of a pin to engage the transverse groove of the curved locking member; and means formed upon the semi-circular body by which the gear may be connected to a tackle.

5. In a releasing gear the combination of a semi-circular body; a curved latch having one end pivoted to one end of the semi-circular body; a plurality of fingers formed upon the opposite end of the latch and disposed in an opposite direction to the curvature of said latch; a curved arm having one end pivoted to the opposite end of the semi-circular body; a plurality of catches formed upon the opposite end of the curved arm and disposed in an opposite direction to the fingers of the curved latch; a recessed boss provided upon the outer peripheral edge of the semi-circular body; a lug formed upon the hinged end of the curved arm; a rod pivotally held to the lug and directed through the recessed boss; a spring encircling said rod within the recessed boss and normally tending to force the catches of the curved arm and fingers of the curved latch out of locking engagement; a knob formed upon the free end of said rod; a transverse groove formed in one edge of the curved arm; a curved casing hinged upon the semi-circular body adjacent to the pivoted end of the curved arm and having an opening; a pin having an eye formed upon one end thereof and removably held in the opening so as to engage the transverse groove in the curved arm; a slot formed in the upper free end of the curved casing; a stud having one end connected upon the free end of the curved arm and provided with a weighted ring to automatically unlock the curved latch from the curved arm when the force of the pull upon said curved latch is slackened; and means formed upon the semi-circular body by which the gear may be connected to a line or cable.

6. In a releasing gear; the combination with a semi-circular body; of a curved retaining arm having one end pivotally held to one end of the semi-circular body and having two oppositely curved fingers formed upon the opposite end thereof; a curved arm having one end pivotally held to the opposite end of the semi-circular body, and having two catches provided upon the opposite end of the curved arm, said catches be-

ing disposed in hook-like formation; a lug arranged upon the pivoted end of the curved arm; and means adapted to automatically move the curved arm to unlock the fingers and said catches, said means consisting of a recessed boss provided upon the semi-circular body adjacent to the pivoted end of the curved arm; and a spring arranged within the recessed boss, and normally pressing against the lug of the curved arm.

This specification signed and witnessed this ninth day of July A. D. 1910.

DANIEL D. O'CONNELL.

Witnesses:

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