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Falterman et al.

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[54] **UNDERWATER REPEATING SHOTGUN**

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[73] Assignee: **The United States of America as represented by the Secretary of the Navy**

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[52] **U.S. Cl.** .....**42/1 L**

[51] **Int. Cl.**.....**F41c 27/00,** F41c 1/00

[58] **Field of Search** .....42/1 L

[56] **References Cited**

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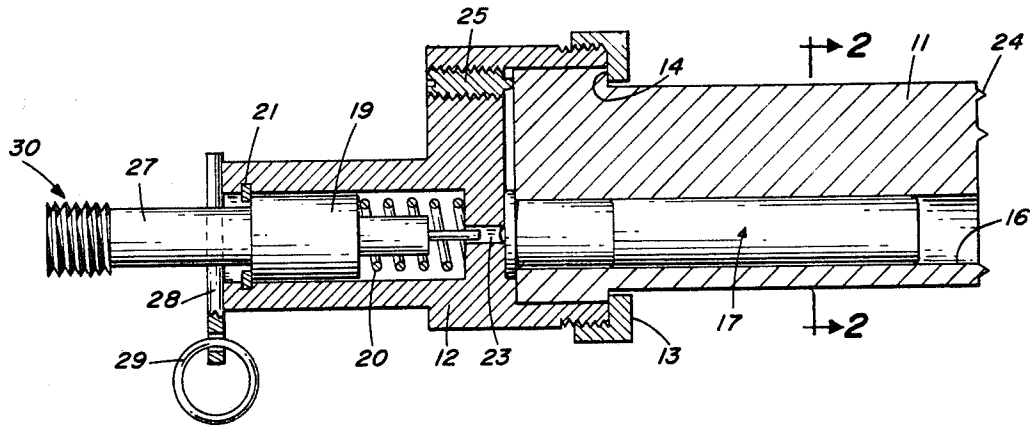
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[57] **ABSTRACT**

An underwater shotgun having a barrel rotatable relative to a firing mechanism. The gun is fired by jabbing it against a target such as a shark. After firing, the firing mechanism is positioned behind a second shell, in the barrel, and the gun is again ready for firing. The gun may be fired, without reloading, up to the number of shells contained within the barrel.

7 Claims, 3 Drawing Figures



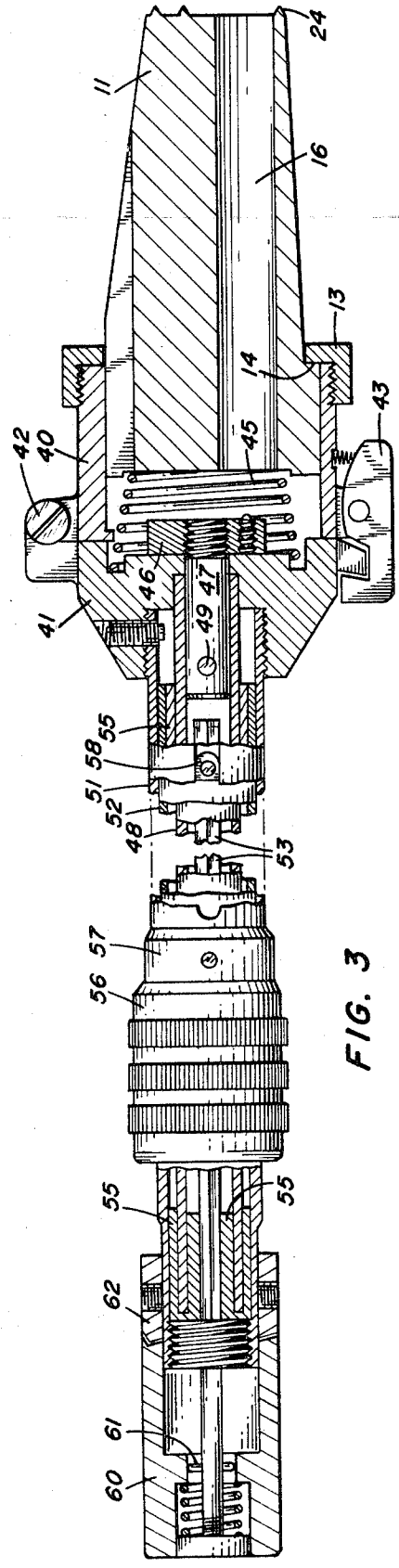


FIG. 3

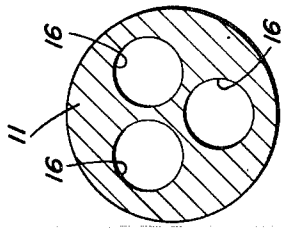


FIG. 2

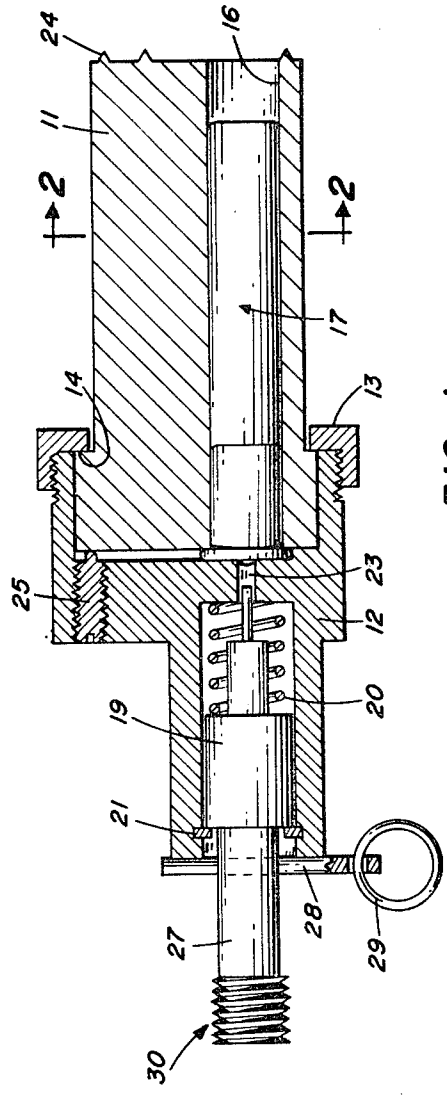


FIG. 1

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UNDERWATER REPEATING SHOTGUN

STATEMENT OF GOVERNMENT INTEREST

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

BACKGROUND OF THE INVENTION

The present invention relates to underwater protection devices and more particularly to underwater guns for use against sharks and other targets.

Under water swimmers have long been plagued by attacking sharks. For protection, various systems have been developed, including cage-like enclosures which are lowered from the surface and repellents which are dispersed in the water. Both of these require that the swimmer remain relatively stationary and consequently, do not provide adequate protection to swimmers whose purpose requires a wide ranging mobility.

Underwater shotguns have been developed and used to protect swimmers who can not be adequately protected by other means. The underwater shotgun currently in use consists of a 12 gauge shotgun shell on the end of a 5 foot long handle. This gun is large and bulky and is particularly cumbersome to swimmers whose mission requires the transportation of other equipment. Also, the prior art shotgun is a single shot device which has proven inadequate in the face of multiple or repeated shark attacks.

SUMMARY OF THE INVENTION

The present invention provides a more compact underwater gun which is capable of multiple firings. The gun barrel is provided with a plurality of holes sized according to the caliber of shells to be used. It has been found, that three shots provide the optimum configuration. Less than 3 shots are not adequate for swimmer protection, while more than three shots has the disadvantage of increasing the gum size a disproportionate amount. Provision is also made for the use of a collapsible handle when size is a major factor.

OBJECTS OF THE INVENTION

An object of the present invention is the provision of an effective protection device for underwater swimmers.

Another object is to provide an underwater shotgun for use by underwater swimmers.

A further object of the invention is the provision of a multi-shot underwater shotgun.

Still another object is to provide an underwater shotgun with increased capabilities which may be collapsible for easy transportation.

These and other objects and advantages as well as the exact nature of this invention will be readily apparent from consideration of the following specification relating the annexed drawings in which:

FIG. 1 is a cutaway of a preferred embodiment of the present invention.

FIG. 2 is a cross section taken along the lines 2—2 of FIG. 1.

FIG. 3 is a partial cutaway of another preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1, which illustrates a preferred embodiment of the present invention, shows a gun barrel **11** partially contained within a barrel retaining breech **12**. The barrel **11** is maintained within the breech **12** by the action of a barrel retaining nut **13** on a shoulder **14** of the gun barrel **11**. The barrel **11** has three shell containing bores **16** (see FIG. 2). The shells **17** within the bores **16** (one shown) may be of any conventional shotgun gauge as the gauge of the shell **17** is solely dependent on the diameter of the barrel bore **16**. Experiments have indicated that a .410 gauge shell with an increase in powder charge of 30 percent is as effective as the standard **12** gauge shell employed in the prior art devices. The use of such a shell allows a decrease in shotgun size without an attendant decrease in shotgun effectiveness.

Located within the rear portion of the breech **12** is a firing pin member **19**. The firing pin **19** is biased away from the shell **17** by a firing pin spring **20**. The action of the firing pin spring **20** is limited by a firing pin retainer **21**. A passageway **23** is provided in the barrel breech **12** for the firing pin **19** to contact the shell **17**.

The firing pin **19** is brought into contact with the shell **17** by jabbing the front face of the barrel **11** against the target. This front face is provided with non-slip points **24** to insure a positive contact between the barrel front face and the target. After the shell **17** has been fired, the barrel **11** is rotated to bring a second shell located in another of the barrel bores **16**, into an operative position. As shown, the shark shotgun provides for 3 shots before reloading. It has been found that less than 3 shots in not adequate for swimmer protection while more than 3 shots has the disadvantage of increasing the shotgun size above an optimum level. The set-screw spacer member **25** is provided to maintain the proper alignment between the barrel **11** and the breech **12**.

Contained within the extending portion **27** of the firing pin member **19** is a safety pin **28**. Attached at one end of the safety pin **28** is a safety pin pull ring **29**. With the safety pin **28** in place, as shown, the firing pin **19** is prevented from contacting the shell **17**. Removal of the safety pin **28** is accomplished by pulling on the pull ring **29**. With the safety pin **28** removed, the shotgun is ready for firing and may be fired by jabbing it against a target such as a shark. The threads **30** on the extending portion **27** of the firing pin **19** are used to engage a handle (not shown). If desired, the handle may be made collapsible by any conventional practice consistant with the requirement that it be rigid when the shotgun is used.

Referring now to FIG. 3, there is illustrated a second embodiment employing the concept of the present invention. In this embodiment, functionally similar elements have been designated by identical reference numerals. For ease in loading, the barrel retaining breech **12** of FIG. **1** has been divided into a barrel retainer **40** and a breech **41**. The barrel retainer **40** and breech **41** are pivotedly connected by a hinge like member **42**. A breech lock **43** maintains the breech assembly in a closed position for firing and allows easy access to the barrel **11** for reloading. The barrel **11** is keyed within

the barrel retainer 40 to prevent relative rotation while allowing an axial displacement. A retaining nut 13 acts upon a barrel shoulder 14 to maintain the barrel 11 within the barrel retainer 40.

A coiled breech spring 45 biases the barrel 11 away from the breech 41. Located within the coils of the breech spring 45 is a firing pin disc 46. The firing pin disc 46 is mounted upon a shaft 47 which is operatively connected to a rod 48 by means of a pin 49. An outer rod 51, sliding tube 52, and spline shaft 53 are concentrically arranged with the rod 48 by means of the bushings 55, outer sleeve telescoping handle collet 56 and sliding tube telescoping handle collet 57. This arrangement allows the concentric elements to telescope relative to each other. A sliding key 58 is provided in the outer rod 51 to maintain engagement of the concentric elements in the telescoped position.

The square spline shaft 53 engages a handle revolving firing disc positioner 60 by a pin 61. A stationary firing pin positioner 62 allows for a hand hold while rotating the handle 60. Rotation of the handle 60 relative to the stationary firing disc positioner 62 causes the firing pin disc 46 to rotate thus positioning the firing mechanism behind a second of the barrel bores 16.

The shotgun of FIG. 3, is transported in a collapsed mode. To use, the telescoping rod and shaft are extended and locked in place by the collets 56 and 57. Firing is accomplished by jabbing the front face of the barrel against a target causing the barrel to move against the firing pin disc 46 against the action of the breech spring 45. The front face of the barrel 11 is provided with non-slip points 24 to insure a positive contact with the target.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is therefor to be understood that, withing the scope of the appended claims, the invention may be practiced otherwise than specifically described.

What is claimed is:

1. An underwater repeating shotgun which comprises:

a barrel having at least two shell containing bores;

a firing mechanism positioned behind the barrel;

said firing mechanism being rotatable relative to said barrel such that the firing mechanism may be alternately positioned behind any of said shell containing bores; and

said barrel having a longitudinal axis and being attached to said firing mechanism by a mounting means, said mounting means allowing longitudinal movement of said barrel but permanently preventing rotation of the barrel about its longitudinal axis.

2. The underwater repeating shotgun of claim 1 wherein the mounting means comprises a barrel retainer and a breech, and said barrel is keyed to said retainer.

3. The underwater repeating shotgun of claim 2 wherein the barrel retainer and breech are pivotally connected and a breech lock maintains the barrel retainer and breech in a closed position for firing.

4. The underwater repeating shotgun of claim 2 wherein the barrel is spring biased away from said firing mechanism and movable, against the action of said spring, into a position allowing contact between a shell within said barrel and said firing mechanism.

5. The underwater repeating shotgun of claim 4 further including a collapsible handle comprised of a plurality of telescoping rods and sleeves and a spline shaft means within said handle for rotating the firing mechanism relative to said barrel.

6. The underwater repeating shotgun of claim 5 further including means on the end of said handle away from said barrel, said means being connected to said spline shaft for rotation thereof.

7. An underwater repeating shotgun comprising:

a gun barrel having at least two bores therein;

an annular shoulder on one end of said gun barrel;

said shoulder on one end of said gun barrel;

said shoulder being mounted within a barrel retaining breech;

barrel retaining nut means cooperating with said breech for allowing rotation of said barrel and permanently preventing longitudinal displacement of said barrel when said annular shoulder is mounted within said breech; and

a firing mechanism spring biased away from said barrel and movable, against the action of said spring, into contact with a shell within said barrel.

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