Sept. 27, 1966 S. J. MESSINA ETAL 3,274,936

EXPLOSIVE SPEARHEAD

Filed Aug. 25, 1964

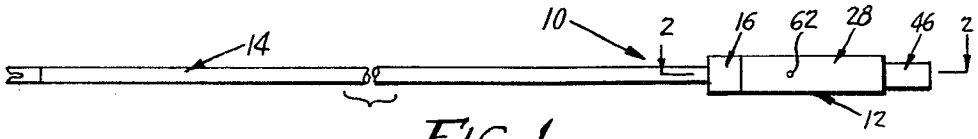


FIG. 1

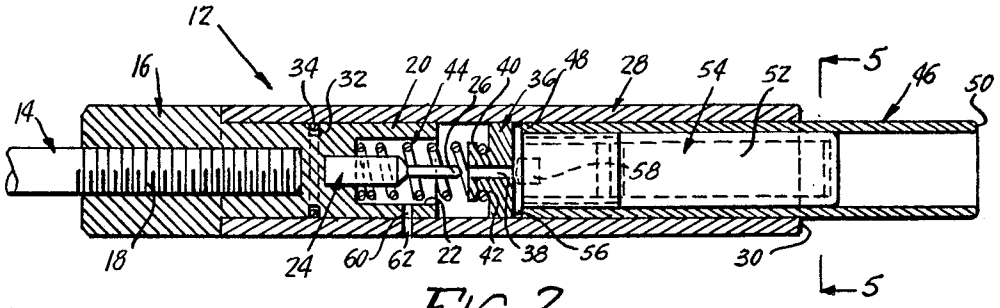


FIG. 2

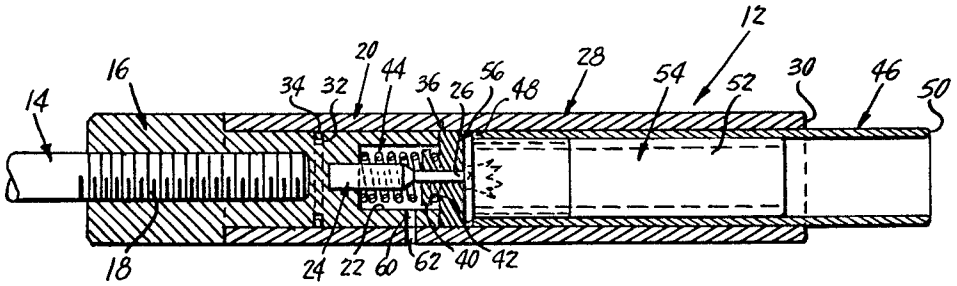


FIG. 3

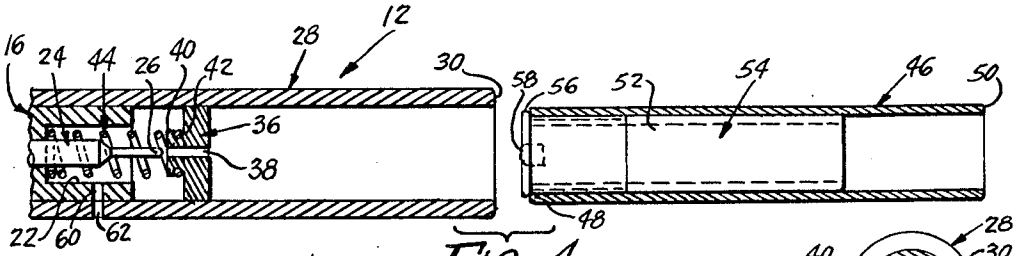


FIG. 4

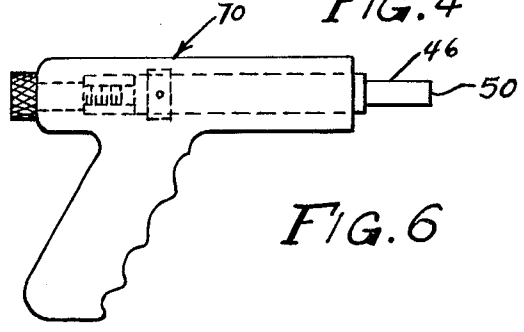


FIG. 6

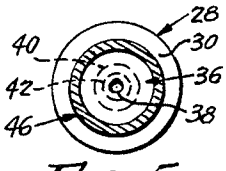


FIG. 5

INVENTORS.
SALVATORE J. MESSINA
JOSEPH H. PULLIAM
BY
Kimmel & Crowell
ATTORNEYS.

United States Patent Office

3,274,936

Patented Sept. 27, 1966

3,274,936

EXPLOSIVE SPEARHEAD

Salvatore John Messina, Cortaro, Ariz. (4526 E. 20th St., Tucson, Ariz.), and Joseph Herndon Pulliam, 2652 W. Arthur Place, Tucson, Ariz.

Filed Aug. 25, 1964, Ser. No. 391,886

1 Claim. (Cl. 102—48)

This invention relates to an explosive spearhead and more particularly to an underwater quick reload explosive spearhead.

As conducive to a better understanding of the instant inventive concept, it should be recognized that those underwater spearheads currently in use are designed for impaling of the target for subsequent capture. Such devices while comparatively useful for sportsmen engaging relatively small marine animals or fish, are not particularly efficient in the killing of larger game. Furthermore, since they are constructed to impale the target, they are difficult to reuse, requiring the sportsman to carry a plurality of spears in the event the first is not fully effective. Even in those instances where the spearhead includes an explosive device, their penetrating feature renders them difficult to reload.

A primary object of this invention is the provision of an explosive spearhead free from the foregoing and other such disadvantages.

Another object of this nvention is to provide an explosive spearhead which does not penetrate the target, but rather delivers a shot charge and the expanding gases of a round of ammunition directly into the target's body.

A further object of the instant invention is the provision of such a device which is particularly designed for underwater use and which includes a construction capable of being quickly reloaded for subsequent shots.

Yet another object of the instant invention is to provide an underwater quick reload explosive spearhead which may be either launched by hand or from any conventional gun-type launching means.

A still further object of this invention is to provide such a device which maximizes personal safety and the range at which killing of a target may be accomplished.

An additional object of the instant invention is the provision of an underwater quick reload explosive spearhead which is sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture, assemble, utilize, and maintain.

Still other objects will in part be obvious and in part be pointed out as the description of the invention proceeds and as shown in the accompanying drawing wherein:

FIGURE 1 is a side elevational view of an explosive spearhead carried by a spear shaft means in accordance with the instant inventive concept;

FIGURE 2 is an enlarged longitudinal cross-sectional view taken substantially on line 2—2 of FIGURE 1 particularly showing the device in the loaded position;

FIGURE 3 is a view similar to FIGURE 2 showing the relationship of the parts after the spearhead has impacted upon a target for firing of the round of ammunition;

FIGURE 4 is a fragmentary exploded sectional view showing the relationship of the parts as a new round of ammunition is to be loaded into the spearhead;

FIGURE 5 is a transverse cross-sectional view taken substantially on line 5—5 of FIGURE 2 with the round of ammunition removed, and

FIGURE 6 is a form of the invention showing a hand held pistol employing the explosive charge.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing, a device in accordance with the instant inventive concept is designated generally

by the reference numeral **10** and includes an explosive spearhead **12** carried by a spear shaft means **14** which may be of any desired construction. It will be readily understood that the spear shaft means **14** may be particularly designed for hand propulsion of the device or may be constructed for use with any conventional and well-known spear launching means (not shown) which may be in the form of a gun, a bow, or the like. While the device of the instant invention is particularly designed for use under water, it will be readily seen that the inventive concept is applicable to other situations as well.

The explosive spearhead **12** includes a breechblock **16** which is secured as by threading or the like **18** to the spear shaft means **14**. The breechblock **16** has an annular cup-shaped portion **20** defining a counterbore **22**. A firing pin **24** is secured to the breechblock in any conventional manner substantially centrally of the counterbore **22** with a terminal end portion **26** extending beyond the cup-shaped portion **20** of the breechblock **16** for a purpose to be described in more detail hereinafter.

An outer barrel **28** is carried by the breechblock **16** and is secured thereto in any conventional manner in circumscribing relationship with respect to the firing pin **24**. The outer barrel **28** includes an open end **30** extending in spaced relationship with respect to the terminal end portion **26** of the firing pin **24**. An annular groove **32** in the breechblock **16** carries a sealing means in the form of an O-ring or the like **34** to provide for the retention and the sealing of the outer barrel **28** to the breechblock **16**.

A breechblock face **36** is slidably received within the outer barrel **28** and has a central aperture **38** aligned with the firing pin **24** and slidingly receiving the terminal end **26** thereof for firing a round of ammunition as will be explained further hereinafter. The breechblock face **36** includes a boss **40** having an annular groove **42** therein in which one end of a spring means **44** is secured, the other end of the spring means circumscribing the firing pin **24** and seating against the bottom of the counterbore **22** in the breechblock **16**. The spring means **44** normally urges the breechblock face **36** away from the firing pin **24** to the position shown in FIGURE 2.

An inner barrel **46** is slidably received within the outer barrel **28** in snugly fitting relation as clearly seen in FIGURES 2 and 3, and has a first end **48** juxtaposed to the breechblock face **36** and a second end **50** extending further from the firing pin **24** than the open end **30** of the outer barrel **28**. The inside diameter of the inner barrel **46** is dimensioned to receive in sliding relationship the body portion **52** of a round of ammunition **54** which as shown in the drawing may be a conventional shotgun shell having an outstanding peripheral ejection flange **56** at one end of the body portion **52** with a primer **58** seated in a well at that end, the primer **58** communicating through a conventional vent with a quantity of propellant utilized to fire buckshot or the like in a well known manner. It will be obvious that if the device of the instant invention is to be utilized under water, the round of ammunition **54** must be waterproof. Similarly, although a conventional shotgun shell has been illustrated, it will be understood that any conventional round of ammunition including cartridges having bullets or the like therein shall be utilized with the device of the instant invention, the individual elements being relatively dimensioned to receive the particular type of ammunition to be fired. As will be seen in the drawing the ejection flange **56** is engaged between the first end **48** of the inner barrel **46** and the breechblock face **36** with the primer **58** aligned with the aperture **38** in the breechblock face **36** for engagement by the terminal end portion **26** of the firing pin **24**.

The use and operation of the device of the instant invention will now be apparent. The spearhead **12** is load-

ed as shown particularly in FIGURE 4 by grasping the second end **50** of the inner barrel **46** and slidingly removing the inner barrel from the outer barrel **28**. The body portion **52** of a round of ammunition **54** is then slid into the inner barrel **46** and the assembly of the inner barrel and the round of ammunition is then slid into the outer barrel **28** until the ejection flange **56** is engaged between the second end **48** of the inner barrel **46** and the breechblock face **36**. During this procedure and the subsequent launching procedure the spring means **44** maintains the breechblock face **36** in spaced relationship to the firing pin **24** whereby the round of ammunition **54** will not be fired. The device **10** is then launched in any conventional manner and upon impact of the second end **50** of the inner barrel **46** with a target, the inner barrel **46**, the round of ammunition **54**, and the breechblock face **36** are moved rearwardly within the outer barrel **28** against the urging of the spring means **54** until the terminal end portion **26** of the firing pin **24** passes through the aperture **38** in the breechblock face **36** to piercingly engage the primer **58** and fire the round of ammunition **54**. It will be seen that the spearhead **12** does not impale the target, but rather ejects the shot or other projectile and the expanding gases of the round directly into the target in a manner similar to a shaped charge.

A vent in the form of aligned apertures **60**, **62** in the cup-shaped portion of the breechblock **16** and the outer barrel **28** allows for expelling any water or gas which may be trapped between the breechblock face **36** and the breechblock **16**.

The device is also adaptable for use in a hand-held pistol or the like, the pistol indicated at **70** in FIG. 6. In use, the end **50** of the barrel **46** is jammed against the game or target at close quarters to set off the charge in those cases where the limited space prevents use of the spear type embodiment of the invention as previously described.

Reloading of the device may be quickly and efficiently accomplished in an obvious manner.

It will now be seen that there is herein provided an improved explosive spearhead which may be utilized by hand propulsion or which may be launched by any conventional spear gun or launching means against a broad range of targets, marine or otherwise, offering as little as one-half square foot of area to the marksman and weighing as little as two pounds.

The above disclosure describes a device which satisfies all of the objectives of the instant invention, and others, including many advantages of great practical utility and commercial importance.

Since many embodiments may be made of the instant invention concept, and since many modifications may be made of the embodiments hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

We claim:

An explosive spearhead for use with a round of ammunition having a body portion, an outstanding peripheral ejection flange at one end of said body portion, and a primer at said one end, said explosive spearhead comprising a breechblock, a firing pin carried by said breechblock, an outer barrel of uniform smooth internal diameter carried by said breechblock in circumscribing relationship with respect to said firing pin and having an open end in spaced relationship to said firing pin, a breechblock face slidably received within said outer barrel, an aperture defined through said breechblock face in aligned relationship with said firing pin, spring means normally urging said breechblock face away from said firing pin, and inner barrel of smooth uniform external diameter slidably received within said outer barrel and having a first end juxtaposed to said breechblock face and a second end extending further from said firing pin than said open end of said outer barrel, said inner barrel being slidably removable from the open outer end of said outer barrel and internally dimensioned to receive therein in sliding relationship said body portion of said round of ammunition and replaceable in said outer barrel with said ejection flange engaged between said first end of said inner barrel and said breechblock face and said primer aligned with said aperture in said breechblock face, said inner barrel and said round of ammunition being retained in said outer barrel solely by the snug fitting relation of said inner and outer barrels, said breechblock including an annular cup-shaped portion defining a counterbore, said firing pin being carried within said counterbore with a terminal end of the same extending sufficiently beyond said cup-shaped portion to pass through said aperture on said breechblock face and piercingly engage said primer on movement of said breechblock face toward said breechblock against the urging of said spring means by impact of said second end of said inner barrel with a target, and vent means including aligned apertures in said outer barrel and said cup-shaped portion of said breechblock, connecting the interior of said cup-shaped portion with the atmosphere.

References Cited by the Examiner

UNITED STATES PATENTS

1,365,869	1/1921	Temple	42—1
2,395,354	2/1946	Temple	89—1 X
2,479,431	8/1949	Temple	89—1 X
3,145,494	8/1964	Willcox et al.	42—1
3,153,875	10/1964	Califano	102—48 X
3,210,877	10/1965	Liberatore	42—1

BENJAMIN A. BORCHELT, *Primary Examiner.*

SAMUEL W. ENGLE, *Examiner.*