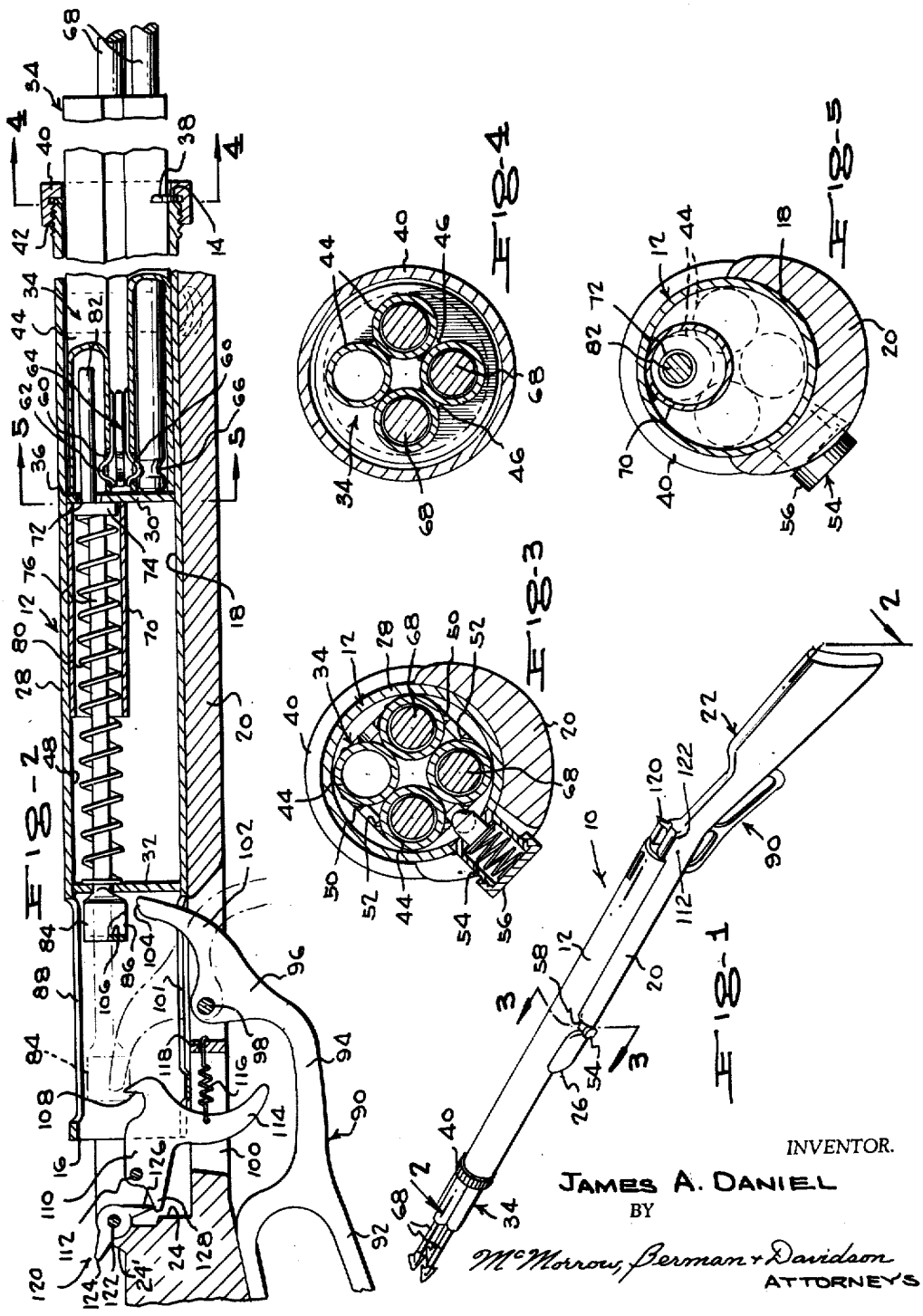
June 3, 1958 J. A. DANIEL 2,837,078

REPEATING SPEAR GUN

Filed Aug. 16, 1957



INVENTOR.

JAMES A. DANIEL

BY

McMorrow, Berman & Davidson

ATTORNEYS

United States Patent Office 2,837,078 Patented June 3, 1958

2,837,078

REPEATING SPEAR GUN

James A. Daniel, Jacksonville, Fla.

Application August 16, 1957, Serial No. 678,626

3 Claims. (Cl. 124—27)

This invention relates to a repeating spear gun, especially but not exclusive for underwater spear-fishing.

The primary object of the invention is to provide an efficient and practical repeating spear gun, involving multiple rotary spear barrels, which enables a spear fisherman to project a number of spears in succession without reloading the gun.

Another object of the invention is to provide a spear gun of this character which is simple in construction, and which includes a small number of simple and easily assembled parts, and which includes a safety lock which is operable both for preventing accidental discharge of the gun and accidental cocking thereof.

A further object of the invention is to provide a spear gun of the character indicated above which has the appearance and feel of a rifle, which is easy to service and repair, and which can be made in well-finished, rugged, and serviceable forms at relatively low cost.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

Figure 1 is a perspective view of a repeating spear gun of the present invention;

Figure 2 is an enlarged and contracted vertical longitudinal section taken on the line 2—2 of Figure 1, and showing the mechanism in uncocked condition;

Figure 3 is a transverse vertical section taken on the line 3—3 of Figure 1; and

Figures 4 and 5 are transverse vertical sections taken on the lines 4—4 and 5—5 of Figure 2.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated spear gun, generally designated 10, comprises a plain cylindrical tube 12 having a forward end 14 and a rear end 16, the rear end portion of the tube 12 being secured in a channel 18 in a portion 20 of a gun stock 22, the rear end 16 of the tube 12 being spaced forwardly from the rear end wall 24 of the channel 18, with the forward end portion of the tube projecting forwardly beyond the forward end 26 of the gun stock portion 20.

The tube 12 has a side wall 28, a forward partition wall 30 spaced rearwardly from the forward end 14 of the tube 12, and a rear partition wall 32, spaced rearwardly from the wall 30 and forwardly from the rear end 16 of the tube 12. A rotatable barrel assembly or spear magazine, generally designated 34 has its rear end portion engaged in the tube 12 forwardly of the forward partition wall 30 with its rear end 36 bearing against the forward partition wall 30, as shown in Figure 2. The forward end portion of the barrel assembly 34 extends forwardly beyond the forward end 14 of the tube 12. A lateral flange 38 fixed on the barrel assembly engages the forward end 14 of the barrel, and a flanged collar 40 is threaded at 42 on the forward end of the tube 12 and engages the forward side of the flange 38 and holds the barrel assembly 34 removably and rotatably in place in the tube 12.

The barrel assembly 34, in the illustrated form, comprises four barrels 44 secured together, as indicated at 46, in co-extensive side-by-side, circumferentially spaced relation, with the outer sides of the barrels bearing rotatably against the bore 48 of the tube 12. Webs 50 are secured between adjacent barrels 44 and have detent holes 52 therein which are engageable by a spring-pressed detent ball assembly 54 which is contained in a socket 56 which is secured to and traverses the tube 12 at a point near the forward end 14 of the tube and is located in a notch 58 in one side of the gun stock portion 20. The detent assembly 54 serves to releasably position and hold the barrel assembly 34 with a barrel 44 thereof in firing position.

At the rear ends thereof the barrels 44 have openings 60 in their inner side walls, through which spring detent portions 62 of a leaf spring assembly 64, located in the space between the barrels 44, project to releasably engage in grooves 66 in the rear ends of individual spears 68 positioned in and projecting forwardly beyond the barrels 44.

The spear projecting mechanism of the gun 10 comprises a longitudinal guide tube 70 secured to and projecting rearwardly from the upper part of the forward partition wall 30 of the tube 12, the guide tube 70 being larger in diameter than and axially aligned with a plunger opening 72 in the partition wall 30. Sliding in the guide tube 70 is a head 74 on the forward end of a plunger rod 76 which works through an opening 78 in the upper part of the rear partition wall 32. Circumposed on the rod 76 and compressed between the head 74 and the rear partition wall 32 is a helical driving or projecting spring 88. Fixed on and projecting forwardly from the head 74 is a slightly upwardly offset longitudinal spear projecting pin 82 which works through the opening 72 in the wall 30 and extends into a barrel 44 which is aligned therewith. The ball detent assembly 54 serves to hold a barrel aligned with the projecting pin 82. On the rear end of the plunger rod 76 and behind the rear partition wall 32 is an enlarged hollow head 84 which has a closed slot 86 in its underside. A longitudinal slot 88 in the top of the side wall 48 of the tube 12 exposes the head 84.

A cocking lever 90 comprises a rearward opening handle portion 92, an intermediate portion 94 and an upwardly offset head 96 pivoted on a pin 98 extending across the forward part of a longitudinal slot 100 opening upwardly into the channel 18 of the gun stock portion 20. The head 96 has a forwardly and upwardly projecting arm 102 thereon which has a rounded free end or nose 104 which is positioned to engage in the closed slot 86 in the plunger head 84, when the lever 90 is swung downwardly away from the gun stock 22, whereby the plunger rod and the projecting pin are retracted rearwardly to cocked position, against the resistance of and so as to tension the spring 80.

As the plunger head 84 reaches the rearward position, indicated in phantom lines in Figure 2, the closed rear end 106 of the head slot 86 engages over a hook 108 upstanding on the forward end of a trigger plate 110 whose rear end extends rearwardly through the open rear end 16 of the tube 12 and is pivoted on a pin 112 extending across an upper part of the channel 18. A finger piece 114 depends from the trigger plate 110 through the slot 100 in the gun stock portion 20 behind the cocking lever head 96 and a slot 101 in the tube 12, and a contractile spring 116 is stretched between the finger piece 114 and a bar 118 extending across the slot 100 in front of the finger piece 114, whereby the trigger plate 110 is

urged upwardly and rearwardly so as to maintain the hook **108** in retaining relation to the plunger rod head **94** until the finger piece **114** be pulled rearwardly for releasing the plunger rod to be projected forwardly by the spring **80**.

A safety lock or catch **120** is pivoted at **122** near and at the upper end of the rear wall **24** of the gun stock channel, on a level above the trigger pivot **112**, and has a rearwardly extending handle **124** which is engageable with a stop **24'** provided on the mid-portion of the upper end of the rear wall **24** of the stock channel **18**. The catch **120** also has a forwardly and downwardly projecting detent **126** which is engageable with the upper side of a nose **128** which projects rearwardly from the trigger plate **110**. The detent **126** can be withdrawn from the nose **128** by pivoting the catch **120** forwardly but when the detent **126** is engaged with the nose **128** and the handle **124** with the wall **24**, the trigger plate **110** is prevented from being pivoted in a forwardly and downward direction either by pulling on the finger piece **114** or by working the cocking lever **90**. In the latter case, the plunger of head **74** cannot pass the trigger plate hook and engage behind the hook **108**, because the trigger plate **110** is held by the catch **120** against being depressed the amount necessary to pass the plunger rod head **74** into cocked engagement behind the hook **108**. Hence, the catch **120** provides a double-safety feature for the gun **10**.

In operation, the gun **10** having been cocked as above described, and the catch **120** released, rearward pressure on the trigger plate finger piece **114** withdraws the hook **108** from the plunger rod head **74**, so that the spring **80** drives the plunger rod **76** forwardly and projects the pin **82** forwardly in an aligned barrel **44** and engages and projects therefrom a spear **68**.

Although I have shown and described herein a specific form of my invention, it will be understood that any change or changes in the structure of and in relative arrangements of components are contemplated as being within the spirit and scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. In a repeating spear gun, a tube having forward and rear ends, a forward partition in the tube spaced rearwardly from the forward end of the tube, a rear partition in the tube spaced from the forward partition and from the rear end of the tube, a spring-pressed plunger rod located between the partitions, said plunger rod having a rear end working through the rear partition and having a longitudinal spear projecting pin working through the forward partition, said projecting pin being eccentric with respect to the axis of said tube, a barrel assembly rotatably and removably secured in the tube forwardly of said forward partition, said barrel assembly comprising a plurality of circumferentially spaced barrels secured together and severally alignable with the spear projecting pin, releasable detent means on the tube and engaging the barrel assembly for holding a barrel in alignment with the projecting pin, cocking means pivoted to the stock adjacent the rear end of the tube and engageable with said plunger for retracting and cocking the plunger, and trigger means pivoted to the stock adjacent the rear end of the tube and engageable by said plunger for holding the plunger in cocked position, said trigger means being operable for releasing the plunger from cocked position.

2. In a repeating spear gun, a tube having forward and rear ends, a forward partition in the tube spaced rearwardly from the forward end of the tube, a rear partition in the tube spaced from the forward partition and from the rear end of the tube, a plunger rod located between the partitions, said plunger rod having a rear end working through the rear partition and having a longitudinal spear projecting pin working through the forward partition, said projecting pin being eccentric with respect to the axis of said tube, a barrel assembly rotatably and removably secured in the tube forwardly of said forward partition, said barrel assembly comprising a plurality of circumferentially spaced barrels secured together and severally alignable with the spear projecting pin, releasable detent means on the tube and engaging the barrel assembly for holding a barrel in alignment with the projecting pin, cocking means pivoted to the stock adjacent the rear end of the tube and engageable with said plunger for retracting and cocking the plunger, and trigger means pivoted to the stock adjacent the rear end of the tube and engageable by said plunger for holding the plunger in cocked position, said trigger means being operable for releasing the plunger from cocked position, said plunger rod having a head on its forward end, a helical spring circumposed on the plunger rod and compressed between said head and said rear partition, a cocking head on the rear end of the plunger rod behind said rear partition, said cocking means comprising a cocking lever pivotally supported between its ends on said stock, said lever having a head on its forward end including an upstanding arm terminating in a nose engageable with said cocking head when the lever is swung downwardly and arranged to push the cocking head rearwardly upon further downward movement of the lever, said trigger means comprising a trigger plate behind said lever head and eccentrically pivoted to said stock and having a forward upstanding hook over which the plunger head is arranged to be engaged upon cocking of the plunger rod by the cocking lever, spring means secured to said trigger plate and said stock for urging said trigger plate forwardly.

3. In a repeating spear gun, a tube having forward and rear ends, a forward partition in the tube spaced rearwardly from the forward end of the tube, a rear partition in the tube spaced from the forward partition and from the rear end of the tube, a plunger rod located between the partitions, said plunger rod having a rear end working through the rear partition and having a longitudinal spear projecting pin working through the forward partition, said projecting pin being eccentric with respect to the axis of said tube, a barrel assembly rotatably and removably secured in the tube forwardly of said forward partition, said barrel assembly comprising a plurality of circumferentially spaced barrels secured together and severally alignable with the spear projecting pin, releasable detent means on the tube and engaging the barrel assembly for holding a barrel in alignment with the projecting pin, cocking means pivoted to the stock adjacent the rear end of the tube and engageable with said plunger for retracting and cocking the plunger, and trigger means pivoted to the stock adjacent the rear end of the tube and engageable by said plunger for holding the plunger in cocked position, said trigger means being operable for releasing the plunger from cocked position, said plunger rod having a head on its forward end, a helical spring circumposed on the plunger rod and compressed between said head and said rear partition, a cocking head on the rear end of the plunger rod behind said rear partition, said cocking means comprising a cocking lever pivotally supported between its ends on said stock, said lever having a head on its forward end including an upstanding arm terminating in a nose engageable with said cocking head when the lever is swung downwardly and arranged to push the cocking head rearwardly upon further downward movement of the lever, said trigger means comprising a trigger plate behind said lever head and eccentrically pivoted to said stock and having a forward upstanding hook over which the plunger head is arranged to be engaged upon cocking of the plunger rod by the cocking lever, spring means secured to said trigger plate and said stock for urging said trigger plate forwardly, a stop on the rear wall of said stock and located behind said trigger plate, and a safety catch in front of said stop and pivoted to said stock, said catch having a rearwardly extending

handle rearwardly engageable with the stop and a forwardly projecting detent engageable over the nose of the trigger plate while said handle is engaged with said stop whereby the trigger plate is held against pivoting forwardly and downwardly and releasing its hook from the cocking head of the plunger rod and engagement of the cocking head of the plunger rod over the trigger plate

hook as the plunger rod is cocked by the cocking lever is precluded.

References Cited in the file of this patent

UNITED STATES PATENTS

2,237,678 Lohr et al. ---------- Apr. 8, 1941