Oct. 21, 1958 F. A. ERICKSON 2,856,912

SPEAR-FISHING GUN

Filed May 1, 1957 3 Sheets-Sheet 1

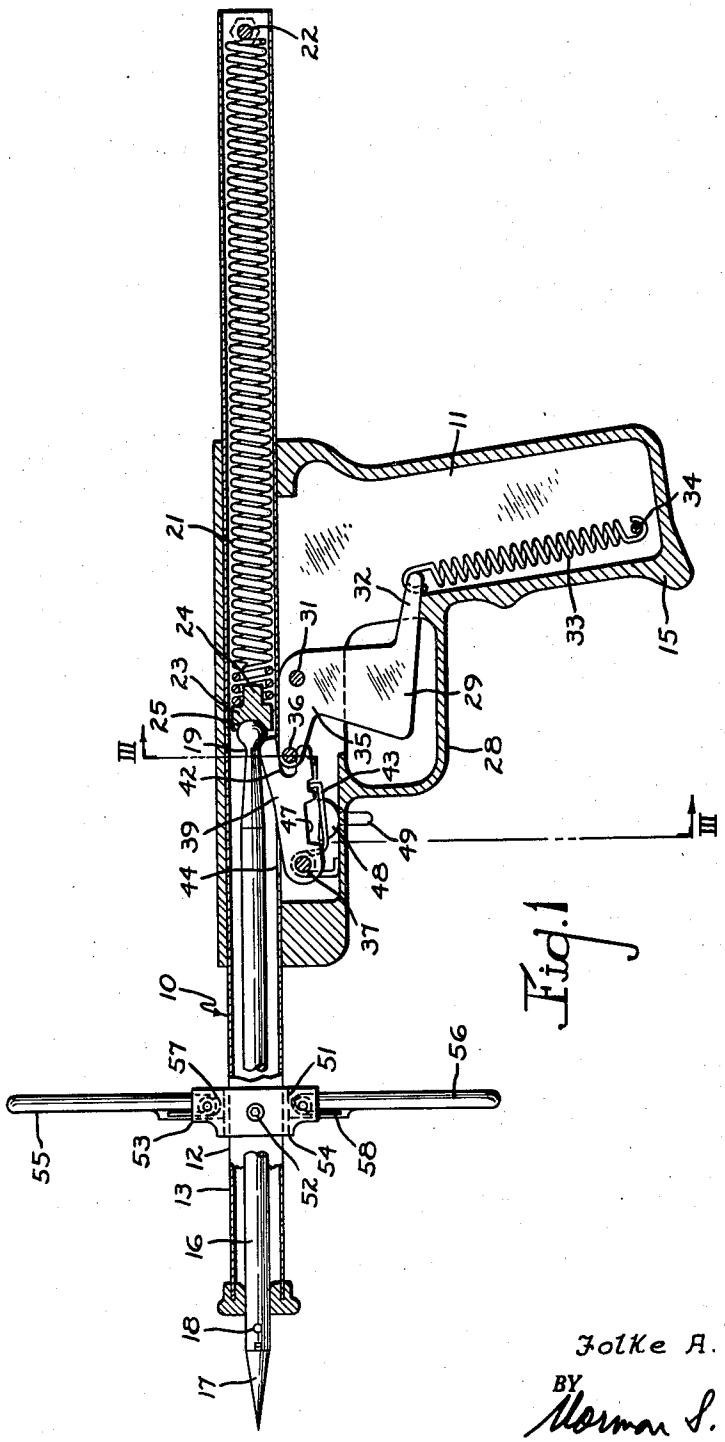


Fig. 1

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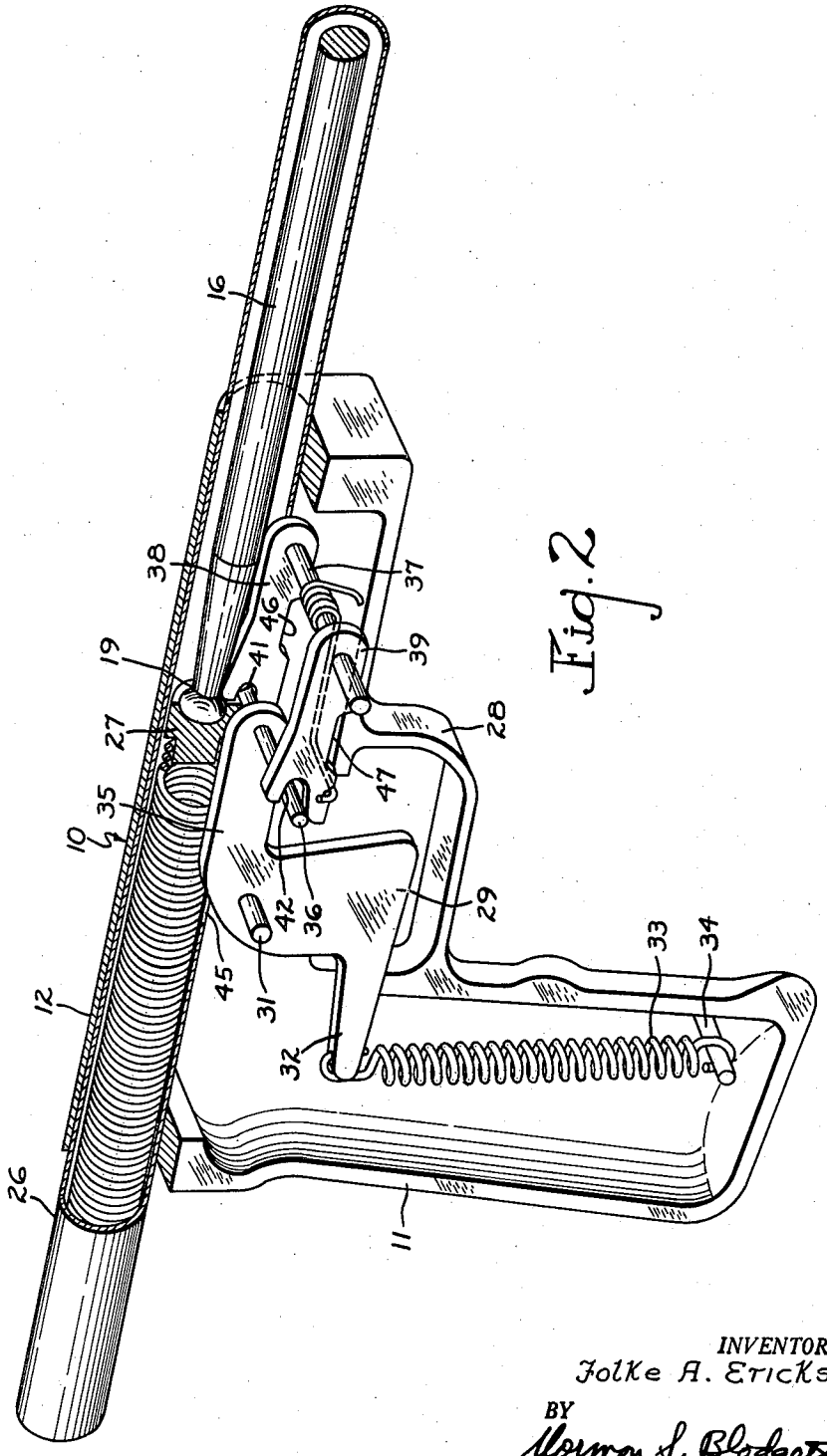


Fig. 2

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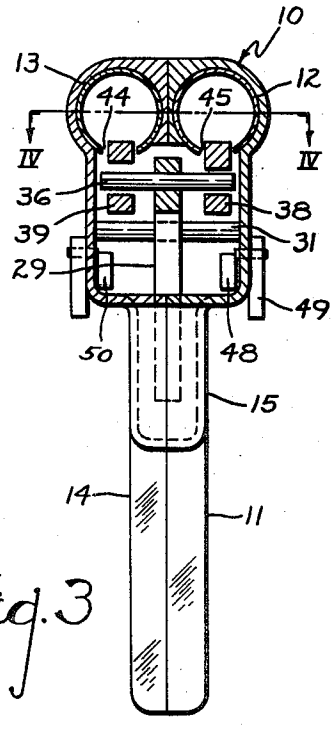


Fig. 3

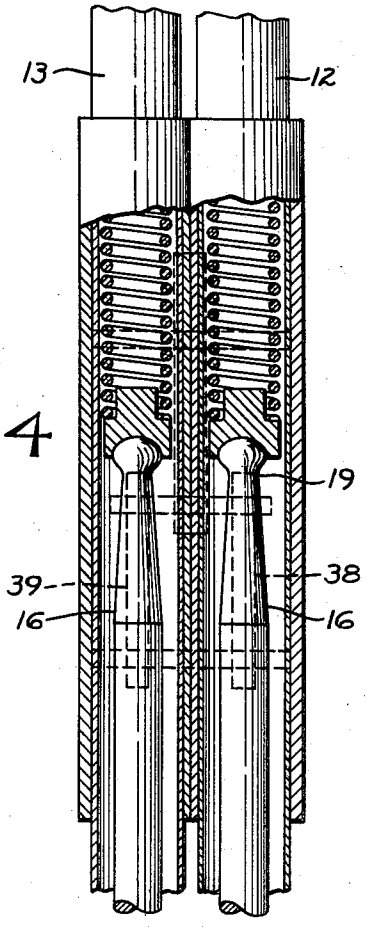


Fig. 4

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SPEAR-FISHING GUN

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3 Claims. (Cl. 124—27)

This invention relates to a spear-fishing gun and more particularly to a spring-powered apparatus for throwing a projectile in fishing or the like.

In the past it has been well-known, particularly in underwater fishing, to make use of a powerful gun for discharging a spear toward the fish. These guns were capable of firing only a spear at a loading and have been powered by various means, including springs, compressed gas, etc. It would be desirable in certain circumstances to be able to discharge two spears, either together or separately, on a single loading. Often the first spear misses the fish, whereas a second would strike the game. Furthermore, in catching dangerous fish, such as the shark, it is well to have a reserve spear in case the fish attacks the fisherman. These and other deficiencies of the prior art have been obviated in a novel manner by the present invention.

It is therefore an outstanding object of the present invention to provide a spear gun capable of projecting two spears either separately or together on a single loading.

Another object of this invention is the provision of a spear gun mechanism using spring power and permitting successive discharge of a plurality of spears.

It is a still further object of the present invention to provide a spear gun having a mechanism which is inexpensive and easy to manufacture, simple in construction, and is capable of a long life of satisfactory operation.

It is another object of the invention to provide an underwater-fishing gun having two separately-discharged spears, so that the fisherman can secure the fish with his first shot and then deliver a fatal blow with the second.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principles of the invention may be employed.

In said annexed drawings:

Figure 1 is a side view with portions broken away of a gun embodying the principles of the instant invention,

Figure 2 is a perspective view of a portion of the gun,

Figure 3 is a sectional view of the gun taken on the line III—III of Figure 1, and

Figure 4 is a sectional view of the gun taken on the line IV—IV of Figure 3.

Referring first to Figure 1, wherein is best shown the general features of the invention, the gun, indicated generally by the reference numeral **10**, is shown as consisting of a hollow handle **11** carrying two tubular barrels **12** and **13**. The handle consists of two portions **14** and **15** which are normally bolted together and each of which carries, respectively, a barrel **12**, **13**. In Figure 1 the portion **14** of the handle and most of the barrel **12** have been removed to facilitate understanding of the invention. The gun makes use of two spears **16**, each of which has a barbed head **17** at its forward end, a transverse stop pin **18**, and circumferential notch **19** at the rearward end. The barrel **13** carries a coil spring **21** at its rearward end; the spring is held in the barrel by a bolt **22** at its rearward end and its forward end is provided with a plug **23**. The plug has a rearward abutment **24** which fits tightly into the spring and a forwardly-directed recess **25** which embraces a rounded rearward end of the spear. A similar spring **26** and plug **27**, shown in Figure 2, are provided for the barrel **12**.

In the preferred embodiment, the handle **11** has the general form of a 45-caliber automatic pistol and is provided with a trigger guard **28**. A trigger **29** is pivotally fastened within the handle by means of a hinge pin **31** extending transversely between the portions **14** and **15** of the handle. The trigger **29** is provided with an extension **32** at its lower rearward portion; the free end of this extension is connected by means of a coil spring **33** to a pin **34** extending transversely across the lower forward portion of the handle. The hinge pin **31** is located above the trigger guard and forwardly of the said pin **34**, so that the net effect is to cause the trigger to be resiliently biased to a forward position wherein the finger-contacting edge is located in the forward part of the loop formed by the trigger guard **28**. The trigger is provided with a forwardly-directed finger **35**, the free end of which is provided with a transverse pin **36**; this pin passes through the finger and is firmly fastened thereto. The pin extends some distance on either side of the trigger, so that the ends reside closely adjacent the inner surfaces of the portions **14** and **15** of the handle.

A pivot pin **37** extends through the handle **11** at the forward portion thereof and hinged to this pin are two trip bars **38** and **39**; these bars are elongated and are attached to the pin **37** at their forward ends. At the rearward end the bar **39** is provided with a slot or notch **42**, while the bar **38** is formed with a notch **41**. The transverse pin **36** of the trigger lies within these notches at all times. In each case, the notch consists of spaced parallel sides terminating inwardly in a semi-circular end. In the case of the notch **41** in the trip bar **38**, the distance between the parallel sides of the notch is about the same as the diameter of the pin **36**, while the sides of the slot **42** of the trip bar **36** are spaced apart by a distance considerably larger than the diameter of the pin. A wire spring **43** engages the rearward portion of the bar **39**, is coiled around the pivot pin **37** and has a free end engaging an inner surface of the handle to lock the spring against rotation relative to the pin; the net effect of this arrangement of the spring is to resiliently bias the bar **39** upwardly.

Now, the barrel **13** is provided with a slot **44** through which the rearward end of the trip bar **39** extends when in an upward position; a similar slot **45** permits entrance of the rearward end of the trip bar **38** into the barrel **12**. The bars **38** and **39** are provided with recesses **46** and **47**, respectively, in their lower edges and in these recesses reside a safety bar **48** which is semi-circular in cross-sectional shape; the pin extends through one side of the handle to the outer surface of the portion **15** and is there provided with a selector finger **49**. A similar safety bar **51** is provided on the other side of the gun to control the bar **38**. The upper rearward portion of the bars **38** and **39** are provided with sharp shoulders to fit snugly in the notches **19** of the spears.

A collar **51** is slidably mounted on the barrels **12** and **13** forwardly of the handle and is provided with a set screw **52** so that it may be locked in a selected position. From the collar extend integral pairs of ears **53** and **54** between which are pivotally connected pressure arms **55** and **56**, respectively. The inner ends of the arms are curved on the rearward side, as shown by dotted lines in Figure 1, so that they will lock in the position shown

in the drawings and will fold only to the rear. Coil springs 57 and 58 are provided to bias the arms to closed position against the barrels when they are released.

The operation of the device will now be readily understood in view of the above description. The gun is cocked and placed in operative condition by inserting each spear into the open end of its barrel and pressing it against the plug 23 and the spring 21; eventually the spear will be moved rearwardly into the barrel until the loading pin 18 strikes the mouth of the barrel. At that time one of the trip bars will reside in the reduced portion or groove 19 of the spear. The rearward ends of the trip bars normally reside within the slots in the barrels and against their extended springs because of the upward pressure of the pin 36 against the upper edges of their notches. The pin 36 is also biased upwardly by the action of the spring 33 on the trigger.

The gun must be loaded by insertion of a spear in the barrel 13 first; the spear compresses the spring 21 and permits the trip bar 39 to rise into the groove 19 under the action of the spring 43. At this time, the trip bar 38 in the barrel 12 cannot rise into the barrel because the extended spring in that barrel covers the slot. Then, the insertion of a spear in the barrel 12 compresses the spring and permits the trip bar 38 to enter the barrel through the slot and reside in locking engagement in the groove of the spear. If one attempted to insert a spear in the barrel 12 first, the upward movement of the trip bar 38 would be prevented because of the extended spring in the barrel 13 preventing the trip bar 39 from entering its barrel and, of course, the pin 36 would extend this prohibition to the trip bar 38. This action of the extended spring in allowing loading only of the barrel 13 first introduces a safety factor; if it were possible to load barrel 12 first and the operator did so by mistake, the subsequent attempt to load barrel 13 would release the spear from barrel 12 and possibly injure the operator.

With the gun loaded and cocked, the trip bars are in their uppermost positions with their upper rearward shoulders residing in the grooves 19 in their respective spears. When the fisherman wishes to release a spear, he squeezed the trigger 29 and moves it rearwardly within the loop of the trigger guard 28. This movement of the trigger brings about a downward movement of the pin 36; since the notch 41 of the trip bar 38 is the same width as the diameter of the pin, there is no play between the two and the bar 38 moves out of the groove 19 in the spear and the spear in the barrel 12 is released and is thrown forwardly with considerable force by the spring 21. If the movement of the trigger 29 is restricted by the safety mechanism, no movement of the trip bar 39 will take place, since its notch 42 is considerably wider than the diameter of the pin. There is, therefore, a considerable movement of the trigger which is possible without moving the trip bar 39 and releasing the spear in the barrel 13. After the spear in the barrel 12 has been projected, further rearward movement of the trigger and further downward movement of the pin 36 will eventually bring about contact between the pin and the lower edge of the notch 42 of the trip bar 39. Further downward movement of the pin after the said contact will result in withdrawal of the trip bar 39 from the notch 19 in its spear. The spear in the barrel 13 will then be released and will be projected from the gun.

If, after the gun has been cocked, the operator wishes to be sure that it will not be accidentally discharged, the selector finger 49 may be moved to condition the safety bar 48 to accomplish this purpose. When the bar 48 is positioned so that the flat side faces upwardly, the gun is capable of normal firing operation. If, however, it is positioned so that the semi-cylindrical surface portion faces upwardly, this portion of the bar extends into the recesses 46 and 47 and prevents downward movement of either trip bar. The gun is, thus, locked against accidental discharge. It is well to condition the safety bar in this manner after the first spear is inserted during loading.

The pressure arms 55 and 56 rest between the operator's legs to hold the gun securely while the spears are being drawn into the barrels against spring pressure. This permits the use of both arms in the cocking operation. The set screw 52 permits adjustment to suit the operator's physical requirements, such as the length of his arms.

When the safety is in its "off" position, rapid actuation of the trigger without attempting to limit its motion will result in almost simultaneous discharge of both spears.

It can be seen, then, that the present construction permits adequate locking of the cocked gun against accidental discharge, it permits individual discharge of the spears, and it permits almost simultaneous projection of the spears. The structure is simple and foolproof and can be readily manufactured from easily-obtained materials.

Other modes of applying the principles of the invention may be employed, change being made as regards the details described, provided the features stated in the following claims, or the equivalent of such, be employed.

The invention having been thus described, what is claimed as new and desired to secure by Letters Patent is:

1. A spear gun comprising a handle, two tubular barrels extending through the handle, each barrel having a slot located within the handle, a coil spring located in each barrel, a trigger pivotally attached to the handle, a first elongated trip bar pivotally connected at one end to the handle and movable at the other end through the slot into one of the barrels, a second elongated trip bar hingedly connected at one end to the handle and movable at the other end through the slot into the other barrel, each of the bars having a notch at its said other end each notch having parallel upper and lower edges, a connecting pin joining the trigger to the bars and residing in the notches to withdraw the bars from the said barrels, spring means normally biasing one of the trip bars through its slot into the barrel to a position in which the connecting pin engages the upper edges of both notches, one of the said notches in the bars being wider than the other so that the lower edge of the notch of one of the trip bars is contacted before that of the other notch and the said one of the trip bars is withdrawn from its barrel before the other when the trigger is actuated.

2. A spear gun comprising a handle, two tubular barrels extending through the handle, each barrel having a slot located within the handle, a coil spring located in each barrel, a trigger pivotally attached to the handle, a first elongated trip bar pivotally connected at one end to the handle and movable at the other end through the slot into one of the barrels, a second elongated trip bar hingedly connected at one end to the handle and movable at the other end through the slot into the other barrel, each of the bars having an elongated notch with parallel upper and lower edges extending longitudinally inwardly from its said other end, a transverse pin fixed to the trigger and residing in the said notches, spring means normally biasing one of the trip bars through its slot into the barrel to a position in which the connecting pin engages the upper edges of both notches, the width of one of the notches being substantially greater than that of the other, so that the lower edge of the notch of one of the trip bars is contacted before that of the other notch and the said one of the trip bars is withdrawn from its barrel before the other when the trigger is actuated.

3. A spear gun comprising a handle, two tubular barrels extending through the handle, each barrel having a slot located within the handle, a coil spring located in each barrel, a trigger pivotally attached to the handle in a plane lying between the barrels, a first elongated trip bar pivotally connected at one end to the handle on one side of the trigger and movable at the other end through the slot into one of the barrels, a second elon-

gated trip bar hingedly connected at one end to the handle on the other side of the trigger and movable at the other end through the slot into the other barrel, each of the bars having an elongated notch with parallel upper and lower straight edges extending longitudinally inwardly from its said other end, a transverse pin extending through and fixed to the trigger, the pin extending from the trigger on each side thereof and residing in the said notches, spring means normally biasing one of the trip bars through its slot into the barrel to a position in which the connecting pin engages the upper edges of both notches, the distance between the parallel edges of the notch of the said one of the trip bars being equal to the diameter of the pin, while the distance between the

parallel edges of the other notch is considerably greater than the diameter of the pin, so that the lower edges of the notch of the said one of the trip bars is contacted before that of the other notch and the said one of the trip bars is withdrawn from its barrel before the other when the trigger is actuated, the trip bar having the wider notch being normally resiliently biased into position within the barrel.

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