

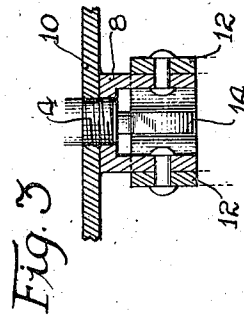
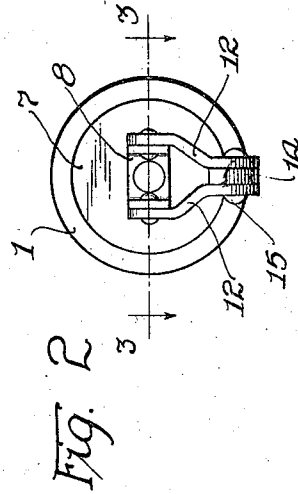
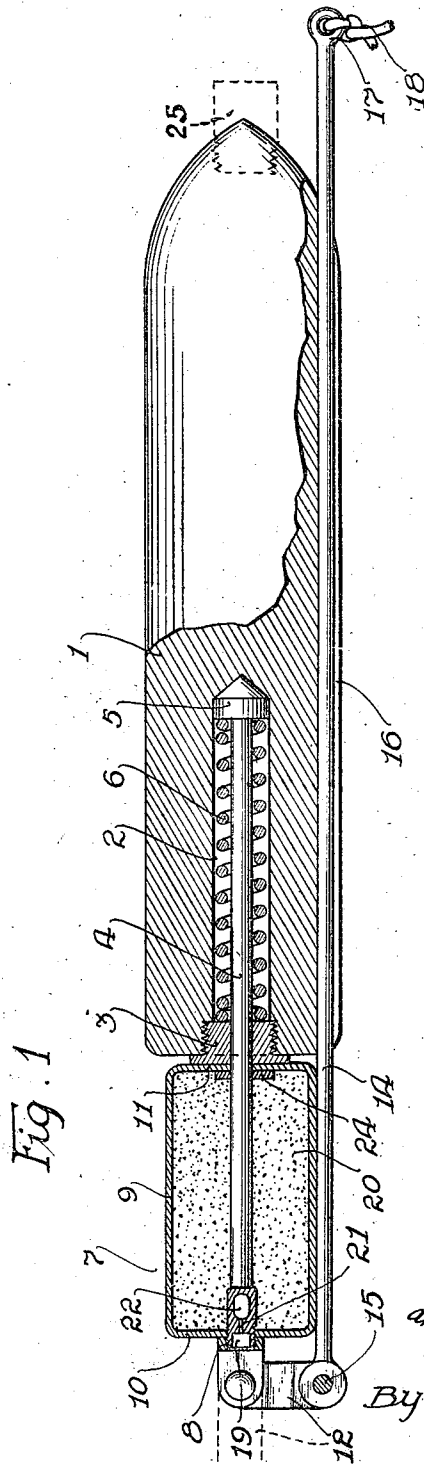
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AMMUNITION FOR LINE THROWING GUNS

Original Filed Jan. 10, 1920



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UNITED STATES PATENT OFFICE.

GREGORY C. DAVISON AND CECIL P. CAULKINS, OF NEW LONDON, CONNECTICUT, ASSIGNORS, BY MESNE ASSIGNMENTS, TO AMERICAN ORDNANCE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

AMMUNITION FOR LINE-THROWING GUNS.

Application filed January 10, 1920, Serial No. 350,492. Renewed February 23, 1923.

To all whom it may concern:

Be it known that we, GREGORY C. DAVISON and CECIL P. CAULKINS, citizens of the United States, residing at New London, in the county of New London and State of Connecticut, have invented a certain new and useful Improvement in Ammunition for Line-Throwing Guns, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to ammunition for muzzle loading guns and is particularly concerned with fixed line throwing ammunition adapted for throwing a line from a stranded vessel to the shore or vice versa, or from one vessel to another for life saving or other salvaging purposes.

We have discovered that in ammunition of this type, as heretofore constructed, considerable difficulty has been experienced by rupture of the line, or the separation of the line and projectile upon firing. A further disadvantage of the prior art devices has been the fact that, since the line was carried from the forward end of the projectile in the firing position, the projectile was compelled to tumble upon leaving the gun, the line than trailing from the rear, this action necessarily entailing an obvious sacrifice of accuracy and also a sacrifice of range, since considerable of its energy would be wasted in beating the air.

We propose to prevent breaking of the line or its separation from the projectile when it is fired by means which forms one of the salient features of the present invention. The particular means which we have shown are not the only means which may be employed within the scope of our invention as set forth in the appended claims, but are the preferred means which we find simple, inexpensive and reliable.

Further important features of our invention lie in the provision of certain improvements in the construction of the ammunition and arrangement of parts, whereby the projectile is made non-tumbling and in the provision of means, in connection with ammunition of this general type, whereby the projectile may be traced at night.

Another feature lies in the fact that the

structure is of the "fixed ammunition" type, the cartridge case being either combined directly with the projectile, or associated therewith as an independent unit, so that it will leave the gun with the projectile.

Various other novel features and advantages of our invention will appear from the following detailed description and the accompanying drawings, in which:

Figure 1 is an axial sectional view, partly in elevation, of the ammunition embodying the features of our invention;

Figure 2 is a face view of the rear end of the cartridge case; and

Figure 3 is an enlarged cross sectional view taken substantially on the line 3—3 of Figure 2.

Referring to the drawings it will be seen that the projectile 1 is in the nature of a body of metal, preferably cast metal, such for example as cast iron or steel, provided with an opening 2 bored axially from its rear end. The rear end of the opening 2 is threaded or tapped for the reception of an axially bored nut 3, through the axial bore of which the shank of the main spindle 4 extends. The spindle 4, which is preferably formed of steel, wrought iron, or the like, terminates at its forward end in an enlarged head 5, between which enlarged head 5 and the nut 3, a coiled spring 6 is interposed about the shank of the spindle 4.

The spindle 4 extends through the cartridge case 7 and is threaded at its rear end into a channeled bracket member 8. The cartridge case 7 which is drawn or spun of copper or other suitable material, comprises a tubular body portion 9, having end walls 10 and 11. This cartridge case is mounted upon the main spindle 4 and securely clamped in place between the nut 3 through which the spindle 4 extends, and the channeled bracket member 8, threaded upon the rear end of the spindle. In addition to clamping the cartridge case 7 in place, the channeled bracket 8 forms bearings for a pair of links 12—12, the upper ends of which links are pivotally connected with the rearwardly extending arms of the bracket member 8.

The rear end of a stem or line rod 14 is pivotally mounted as shown at 15, between the convergent free ends of the links 12—12. The line rod 14 extends forwardly

through a longitudinal groove 16 provided in the projectile 1 and terminates at its forward end in an eye 17 to which a line 18 may be attached in any convenient manner.

The rear end of the spindle 4 is provided with a suitable primer 19. The propelling charge 20 with which the cartridge case 7 is filled is ignited by the primer 19, either by way of a passageway 21 and a cross opening 22 provided in the shank of the spindle 4 or in any other desired manner. In the event that the particular arrangement shown is employed, the cross opening 22 is provided with a suitable booster charge of fine black powder. It may be that in order to make the spring 6 effective, a fixed washer 24 will have to be attached to the spindle 4 with the idea in view that the pressure against this washer 24 will overcome the inertia which tends to compress the spring 6 when the projectile 1 is fired.

To aid in tracing the line carrying projectile at night a tracer or smoke charge 25 shown in dotted lines in Figure 1 is attached to the forward tapered end or conical head of the projectile 1. We are not concerned here with the details of the tracer or smoke charge but simply with the provision of a line throwing projectile with such a charge or tracer, the attachment of the tracer remote from the base of the projectile permitting attachment of the line to said base in the manner described. The tracer or smoke charge may of course be omitted when the projectile is used during the day or where its course may be otherwise followed.

In loading the gun the projectile 1 is preferably arranged with the line rod 14 lying along the bottom of the bore of the gun. Upon operation of the gun the firing pin co-operates with the primer 19, igniting the propelling charge 20 in the cartridge case 7, in this particular instance through the passageway 21 and booster charge provided in the cross opening 22. Upon ignition of the propelling charge 20, the end 10 being the weakest part of the cartridge case 7, breaks first and the gases blow out rearwardly, sending the projectile 1 and rod 14 as well as the debris of the cartridge case through the barrel and out of the muzzle of the gun. Upon leaving the muzzle of the gun the line rod 14 will immediately swing or fold back through the pivoted links 12—12 until it trails out in a direct line back of the projectile, as shown in dotted lines in Figure 1. This trailing of the line rod 14, together with the arrangement of the other parts will maintain the axis of the projectile in flight substantially tangent to its trajectory, making for an efficient range and a high order of accuracy. By having the cartridge case of smaller diameter than the bore a small propelling charge may be used, thus giving

the low velocity desired to the projectile, since a high velocity will snap the line; but the diameter of the cartridge case being so much smaller than that of the bore of the gun, there will be no tendency of the cartridge case to stick in the bore and the fragments of the cartridge case will be thrown out of the gun with the blast, thus facilitating the re-loading of the piece.

The projectile will continue on straight with its axis substantially tangent to its trajectory while the rod 14 picks up the line 18 and trails it along. At the instant that the line 18 becomes taut the sudden jerk (which has heretofore frequently resulted in breaking the line) will be absorbed by the action of the spring 6 as this spring is compressed between the head 5 of the spindle 4 and the nut 3 as the spindle 4 is moved rearwardly by reason of the force applied to the rear end of the rod 14.

We claim:

1. In combination, a line throwing projectile, a rearwardly extending stem on said projectile, a bracket member threaded upon the rear end of said rearwardly extending stem, a cartridge case clamped between the projectile and said bracket member, and means for attaching a line to said rearwardly extending stem.

2. In combination, a line throwing projectile, a rearwardly extending stem adapted for axial movement in the base of said projectile, yielding means between said stem and the projectile, a nut embracing said rearwardly extending stem and threaded in the base of said projectile, a bracket member threaded upon the rearwardly extending stem, and a cartridge case clamped between the projectile and said bracket member.

3. Apparatus of the character described, comprising an elongated projectile provided with a longitudinal slot along one edge thereof, and with a centrally disposed bore in the rear portion of said projectile, a bushing closing the rear end of said bore, a stem slidably mounted in said bushing and provided with an enlarged head slidably mounted in said bore, a coil spring interposed between said head and said bushing, a cartridge case surrounding said stem, a bracket secured to said stem in rear of said cartridge case, a yoke hinged to said bracket, and a rod hinged to said yoke and adapted to fold up into said longitudinal slot in the projectile, said rod being provided with an eye in the forward end thereof.

4. Apparatus of the character described, comprising an elongated projectile provided with a longitudinal slot along one edge thereof, and with a centrally disposed bore in the rear portion of said projectile, a bushing closing the rear end of said bore, a stem slidably mounted in said bushing and provided with an enlarged head slidably

mounted in said bore, a coil spring interposed between said head and said bushing, a cartridge case surrounding said stem but of a less diameter than the projectile, a primer carried by said stem adapted to explode the charge contained in said cartridge case, a bracket secured to said stem in rear of said cartridge case, a yoke hinged to said bracket, and a rod hinged to said yoke and adapted to fold up into said longitudinal slot in the projectile, said rod being provided with an eye in the forward end thereof.

5. Apparatus of the character described, comprising an elongated projectile provided with a longitudinal slot along one edge thereof, and with a centrally disposed bore in the rear portion of said projectile, a bushing closing the rear end of said bore, a stem slidably mounted in said bushing and provided with an enlarged head slidably mounted in said bore, a coil spring interposed between said head and said bushing, a cartridge case surrounding said stem, a washer secured to said stem adjacent to the inside front wall of said cartridge case, a bracket secured to said stem in rear of said cartridge case, a yoke hinged to said bracket, and a rod hinged to said yoke and adapted to fold up into said longitudinal slot in the projectile, said rod being provided with an eye in the forward end thereof.

6. Apparatus of the character described, comprising an elongated projectile provided with a longitudinal slot along one edge thereof, and with a centrally disposed bore in the rear portion of said projectile, a bushing closing the rear end of said bore, a stem slidably mounted in said bushing and provided with an enlarged head slidably mounted in said bore, a coil spring interposed between said head and said bushing, a cartridge case surrounding said stem but of a less diameter than the projectile, a primer carried by said stem adapted to explode the charge contained in said cartridge case, a washer secured to said stem adjacent to the inside front wall of said cartridge case, a bracket secured to said stem in rear of said cartridge case, a yoke hinged to said bracket, and a rod hinged to said yoke and adapted to fold up into said longitudinal slot in the projectile, said rod being provided with an eye in the forward end thereof.

7. The combination with a line throwing projectile of means for connecting a line thereto, said connecting means including a

stem having yieldable mounting in the base of the projectile and projecting rearwardly from the center of the base thereof.

8. The combination with a line throwing projectile of means for connecting a line thereto, and a cartridge case carried by said connecting means.

9. The combination with a line throwing projectile of means for connecting a line thereto, means for firing the projectile and a primer for said firing means, said primer being carried by said connecting means.

10. The combination with a line throwing projectile of means for connecting a line thereto, a cartridge case attached to the base of the projectile and a connection between the base of the cartridge case and said connecting means.

11. The combination with a line throwing projectile of means for connecting a line thereto, a cartridge case at the base of the projectile, a stem carried by the projectile and projecting rearwardly through said cartridge case and a connection between the end of said stem and said connecting means.

12. In combination, a line throwing projectile, a rearwardly extending stem having an enlarged head adapted for axial movement in the base of said projectile, a nut embracing said rearwardly extending stem and threaded in the base of said projectile and spring means between said nut and the enlarged head of said rearwardly extending stem, and means for attaching a line to said stem.

13. In combination, a line throwing projectile, a rearwardly extending stem carried by said projectile, yielding means between said stem and the projectile, means for attaching a line to said rearwardly extending stem, and means carried by said stem for receiving the pressure produced upon firing and transmitting the same against said yielding means.

14. In combination, a projectile, a tracer for tracing the projectile, said tracer being attached to the projectile remote from the base thereof to permit attachment of means for connecting a line to the projectile to the base substantially centrally thereof, and a line connection attached to the base substantially centrally thereof and adapted to trail the projectile substantially axially.

In witness whereof, we hereunto subscribe our names this 6th day of January, 1920.

GREGORY C. DAVISON.
CECIL P. CAULKINS.