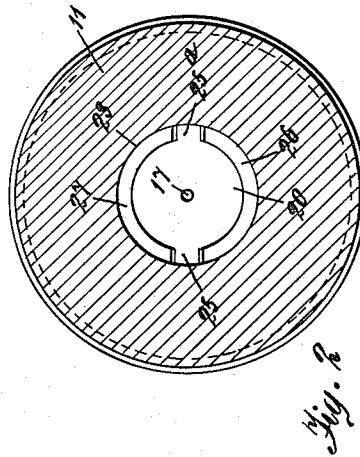
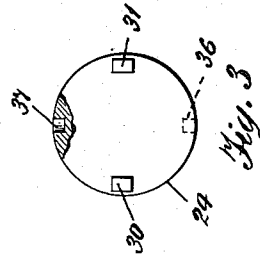
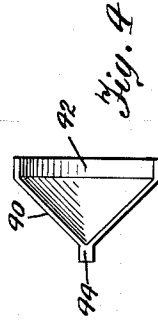
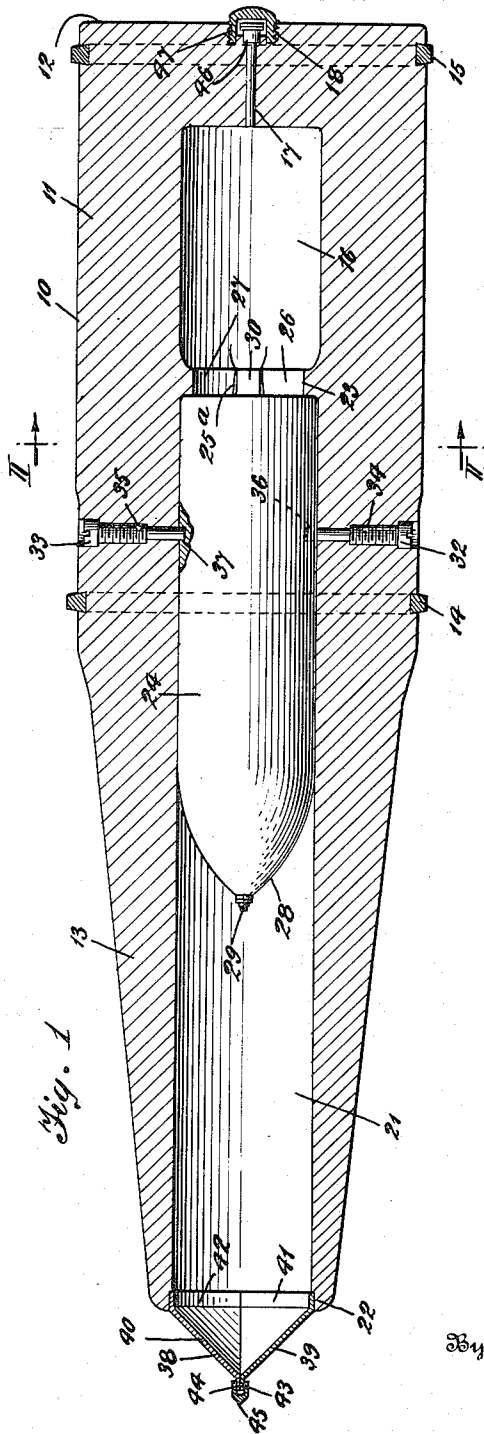


A. H. HILL.
 ULTRA DISTANCING PROJECTILE.
 APPLICATION FILED APR. 30, 1917.

1,275,686.

Patented Aug. 13, 1918.



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UNITED STATES PATENT OFFICE.

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ULTRA-DISTANCING PROJECTILE.

1,275,686.

Specification of Letters Patent.

Patented Aug. 13, 1918.

Application filed April 30, 1917. Serial No. 165,420.

To all whom it may concern:

Be it known that I, ARTHUR H. HILL, a citizen of the United States, and a resident of New York, county and State of New York, have invented a certain new and useful Improvement in Ultra-Distancing Projectiles, of which the following is a full, clear, and exact specification.

This invention relates to a class of ammunition for fire arms.

My invention has for its object primarily to provide a projectile designed to be fired by the ordinary or any preferred type of gun for bombarding a locality, or an object that may be distanced considerably beyond the normal range of the gun, and which is of a compound form wherein two shells are synchronously projected in a manner whereby one shell after traveling a given distance may be caused to fire a second shell, thereby enabling war vessels, artillery and the like to effectually bombard objects while remaining beyond the danger zone of opposing batteries. The invention consists essentially of a main shell with a communicating bore leading through its penetrating end, and in the chamber of the main shell is a second shell adapted to be fired therefrom at a time when the main shell following being fired from a gun has traveled a predetermined distance.

Other objects of the invention are to provide means whereby a time fuse may be carried in the main shell for being operative in its chamber; to provide one or a number of destructible retainers for releasably holding the second shell in the main shell; to provide in the mouth of the bore of the main shell a collapsible cap to prevent pressure of the air from retarding the flight of the projectile by entering the bore of the main shell; and to provide a simple and efficient projectile which is susceptible of being made so as to be fired by guns of different types.

A practical embodiment of the invention is represented in the accompanying drawing forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, and will then be pointed out in the claims at the end of the description.

In the drawing, Figure 1 is a sectional view, partly in detail and partly broken away, taken through one form of projectile embodying my invention.

Fig. 2 is a section taken on the line II—II of Fig. 1.

Fig. 3 is a view, partly broken away, of one end of the second shell used in the projectile.

Fig. 4 is a side elevation of one of the members of the cap used on the main shell of the projectile, and

Fig. 5 is a top plan of this member of the cap.

The projectile has a main, or mother shell 10 which may be made in any suitable shape and size so as to be fired from any well known, or preferred types of naval and land guns, though the main shell illustrated has a butt 11 with a cylindrical exterior and a rectilinear free end 12, while projecting from the other end of the butt is a tapered portion 13. At spaced intervals on the outer periphery of the butt 11 of the main shell may be a number of the usual rotating bands, as 14 and 15, to take the rifling of the gun whereby the projectile is rotated in the customary manner.

Interiorly of the butt 11 of the main shell 10 is a chamber 16 which may be charged with a suitable quantity of explosive, and this charge chamber is of a size so as to be spaced a considerable distance from the rectilinear end of the butt 11 as well as being of a diameter whereby the strength of the wall of the butt will not be weakened by providing therein this chamber. Leading from the chamber 16 through the butt 11 to the central part of its rectilinear end is a duct, or small passage 17 which terminates with a threaded recess 18 in this end of the butt, and the opposite end of the chamber 16 may be reduced in diameter. Communicating with the reduced end of the chamber 16 is a narrow passage 20, and from this passage is a bore 21 leading lengthwise through the tapered portion 13 of the main shell so that the mouth of the bore will be at the contacting end, as 22, of the main shell. The bore 21 is of a diameter preferably corresponding to the diameter of the charge chamber 16, and the narrow passage 20 being of less diameter than both the chamber and the bore of the wall of the passage provides a stop, or seat, as 23, for a second, or inner shell, as 24. Opposite parts of the seat 23 are slotted, as at 25 and 25^a, and the walls of these slots may be slightly tapered toward the chamber, the slotting of the seat in this manner divides it into

two substantially semicircular members, or projections 26 and 27.

The second, or inner shell 24 may be in the form of a solid shot, or of an explosive type, and this shell is made in the usual form with a tapered contact end, as 28, in which may be mounted a fulminating cap, as 29, when the shell is of an explosive class. This second shell is of a diameter to movably fit closely in the bore 21 of the main shell 10, and the second shell is disposed in the main shell so as to be seated on the spaced members 26 and 27 of the seat 23. Projecting rearwardly from the end of the second shell 24 opposite to its contact point 28 are two spaced lugs 30 and 31 which are removably arranged in the slots 25 and 25^a of the seat 23 of the main shell, in order to partly hold the second shell releasably against rotation within the main shell, and to further releasably hold this second shell in the main shell one or more retainers, as 32 and 33, are provided. Both of the retainers 32 and 33 are preferably in the forms of screws, or bolts, which are countersunk in threaded holes 34 and 35 passing through the wall of the main shell 10 into the bore 21. The bolts or retainers 32 and 33 are of lengths so that one of their corresponding ends are removably seated in recesses, as 36 and 37, provided in opposite parts of the periphery of the second shell, and these bolts are of fragile metal of sufficient strength to hold the second shell within the main shell when fired from a gun, while permitting of being easily broken when the second shell is fired from the main shell.

To prevent the pressure of the air from retarding the velocity of the projectile when fired by the air entering into the mouth of the bore of the main shell, in the mouth of the bore is a removable collapsible cap 38. The cap 38 may be of any suitable form, though this cap preferably consists of two substantially semi-cup shaped, or cone-shaped plates 39 and 40, and these plates are arranged so that their concavities are in opposed relation. The diameters of the wide ends of the plates correspond to the diameter of the mouth of the bore of the main shell 10, and projecting from these ends of the plates may be similar flanges 41 and 42 which are removably fitted snugly in the mouth of the bore. Projecting from the apices of the cone-shaped plates of the cap 38 are two contacting lugs 43 and 44 over which is removably arranged a ferrule, as 45, so that when the second shell 24 is fired from the main shell 10 the cap 28 will be easily forced from the mouth of the bore of the main shell as well as being separated into its respective parts. Moreover, by providing this form of the cap all air will be prevented from entering the bore of the main shell during the flight of the projectile.

In order to cause the second shell to be fired from the main shell at a predetermined time, the chamber 16 of the main shell is charged with a required amount of explosive, not shown, and the explosive is fired by means of a time fuse, or cap as 46, which may be of any well known, or preferred type adapted to be set for igniting the explosive in the chamber 16 at a given period. This time fuse is arranged in the recess 18 of the main shell so as to be operative through the duct 17 to allow of being conveniently manipulated to discharge the explosive, and this fuse may be protected from being accidentally fired by means of an exteriorly threaded cap 47 being screwed into the threaded recess 18 of the main shell to inclose the opening of the recess.

In practice the projectile is loaded into the breech of a gun in the usual fashion following the proper setting of the time fuse 46, and the projectile is fired in the customary way by the use of the required amount of powder. When the projectile has been driven a certain distance the time fuse will then operate to explode the explosive in the chamber 16 of the main shell, and in turn the second shell 24 will be fired from the main shell, it being understood that the impetus resulting from the discharge of the second shell will retard to an extent the velocity of the main shell.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle, or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a projectile of the character described, a main shell having a chamber with a communicating bore leading through its contacting end, a second shell within the bore of the main shell adapted to be fired from the main shell at a time subsequent to the main shell being fired from a gun has traveled a given distance, and a collapsible cap removably mounted in the mouth of the bore of the gun.

2. In a projectile of the character described, a main shell having a chamber for an explosive with a communicating bore leading from the chamber through its contacting end, a second shell within the bore of the main shell adapted to be fired from the main shell subsequent to the main shell being fired from a gun, a time fuse in the main shell for exploding the explosive at a predetermined time, and a collapsible cap

removably mounted in the mouth of the bore of the gun.

3. In a projectile of the character described, a main shell having a chamber for
5 an explosive with a communicating bore leading through its contacting end, a second shell within the bore of the main shell, means on the main shell for exploding the
10 explosive at a predetermined time subsequent to the main shell being fired from a

gun, a destructible retainer for releasably holding the second shell in the main shell, and a collapsible cap removably mounted in the mouth of the bore of the gun.

This specification signed and witnessed 15
this 28th day of April, A. D. 1917.

ARTHUR H. HILL.

Witnesses:

GEORGE F. BENTLEY,
V. M. RUMPH.