R. L. WRIGHT.

SHELL AND PROJECTILE.

APPLICATION FILED OCT. 21, 1920.

1,374,704.

Patented Apr. 12, 1921.

4 SHEETS—SHEET 1.

Fig. 1.

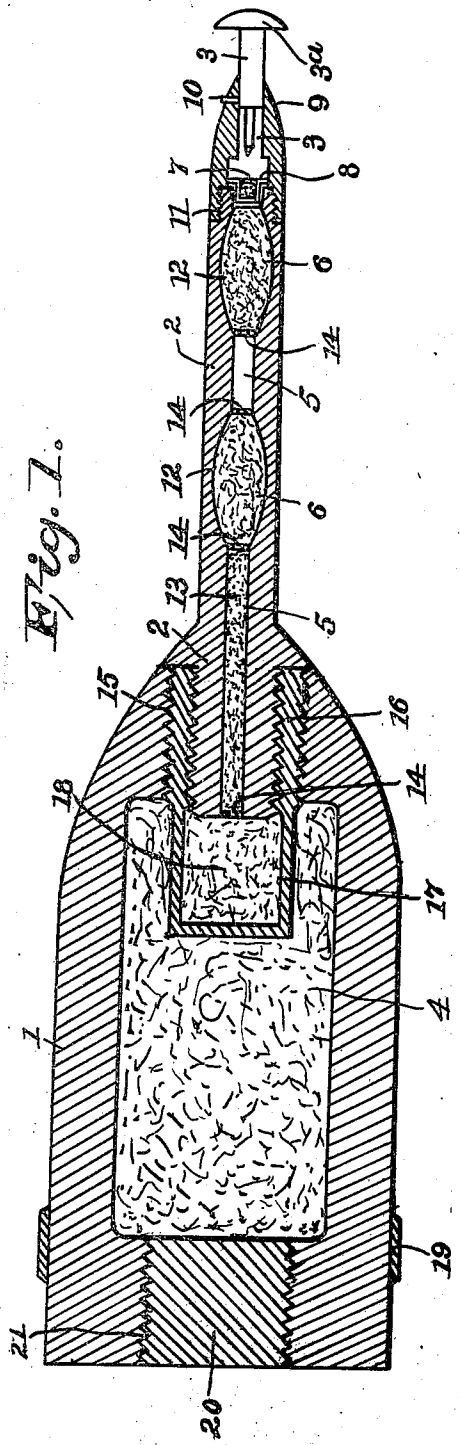
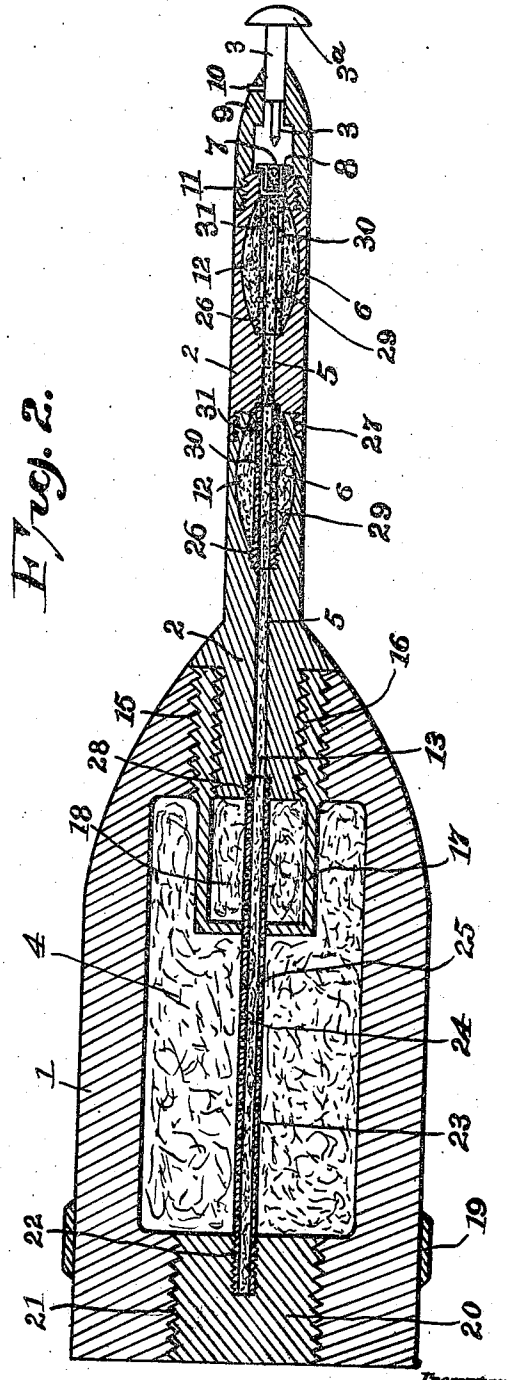


Fig. 2.



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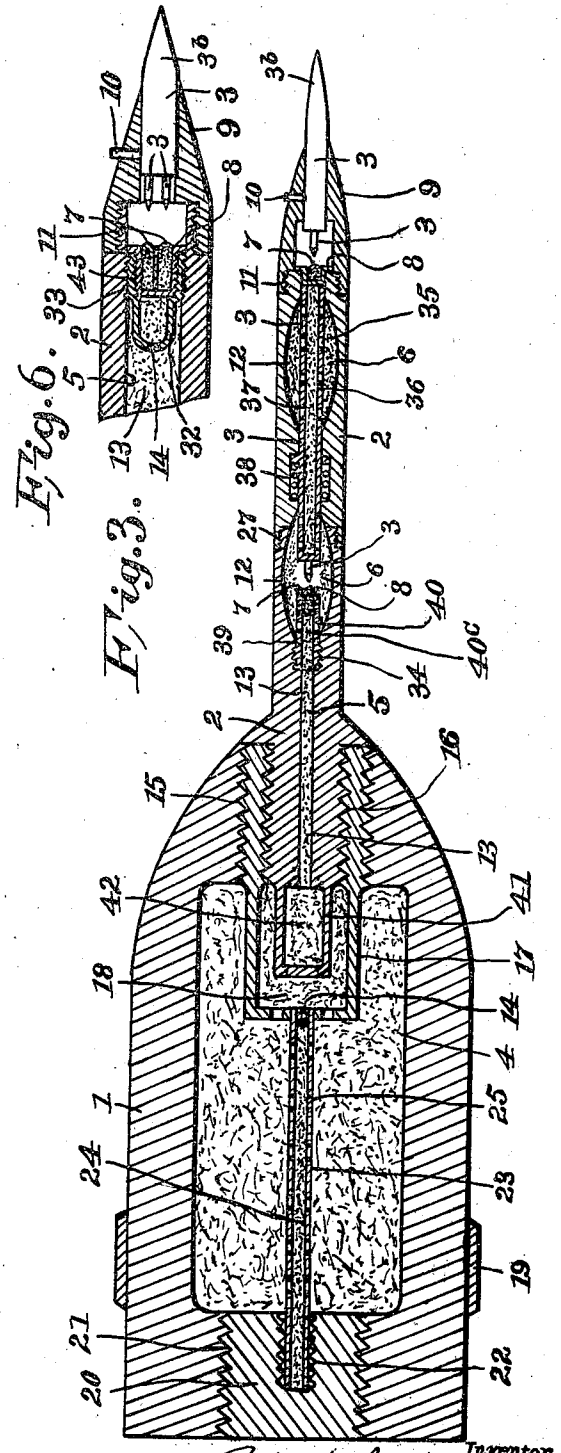
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4 SHEETS—SHEET 2.

Fig. 6.

Fig. 3.



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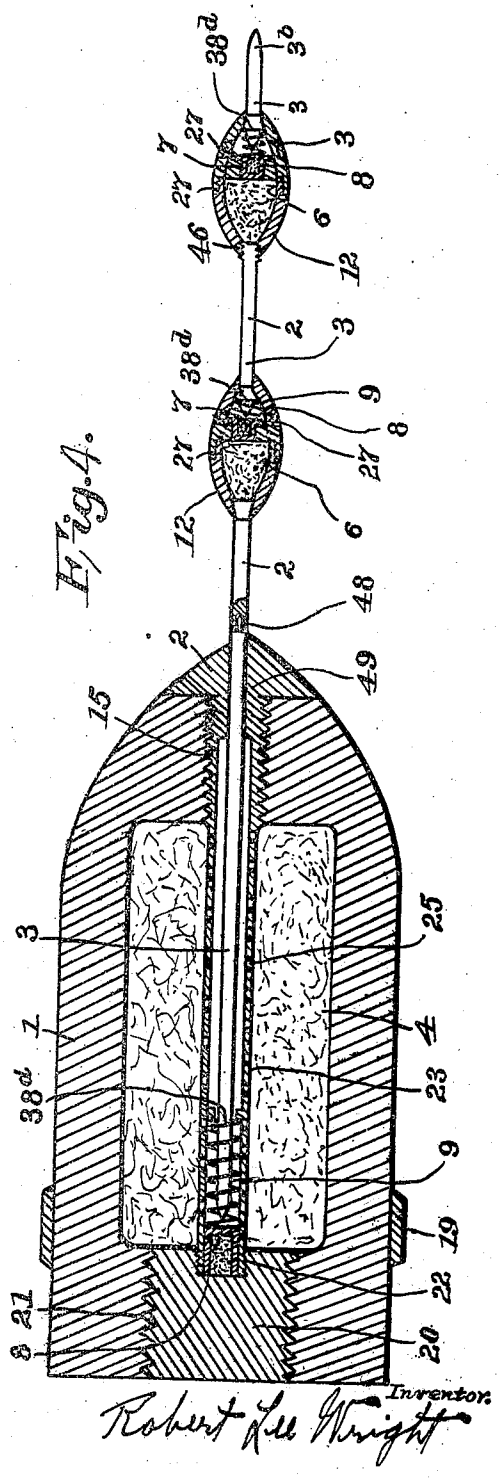
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4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

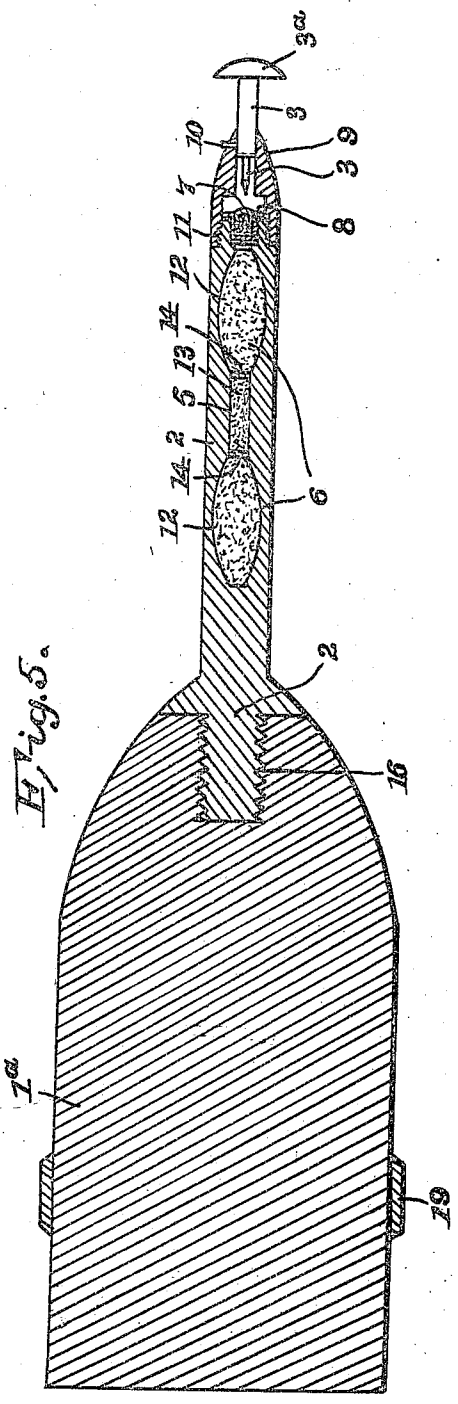


Fig. 5.

Inventor.

Robert Lee Wright

UNITED STATES PATENT OFFICE.

ROBERT LEE WRIGHT, OF LOS ANGELES, CALIFORNIA.

SHELL AND PROJECTILE.

1,374,704. Specification of Letters Patent. Patented Apr. 12, 1921.

Application filed October 21, 1920. Serial No. 418,343.

To all whom it may concern:

Be it known that I, ROBERT LEE WRIGHT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Shells and Projectiles, of which the following is a specification.

This invention relates to shells and projectiles and is a continuation in part of the following applications:

Application filed February 23, 1918, Serial Number 218,797, application filed May 1, 1918, Serial Number 231,849, application filed May 20, 1918, Serial Number 235,482, application filed June 1, 1918, Serial Number 237,698, application filed July 29, 1919, Serial Number 314,165.

It is understood that the patent allowed applicant on October 2, 1920, in the said application Serial Number 314,165, covers this invention broadly and that said patent will be over this patent when same is allowed in this application.

One of the particular objects of filing this application is to more fully show in one application some of the different ways of making this invention as explained in the specifications of the above mentioned co-pending applications.

With these and other objects in view the invention consists in the novel details of construction and combination of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification, in which like numerals designate similar parts in all the views:

Figure 1 shows a longitudinal sectional view of an explosive shell or projectile 1, with explosives within and having a shell-pointer or projection with explosives in same secured to the forward end thereof.

Figs. 2, 3 and 4 are modified forms of the structure shown in Fig. 1.

Fig. 5 shows a solid projectile with shell-pointer or projection having explosives within secured to the forward end thereof.

Fig. 6 is like Figs. 1, 2, 3 and 5 with slight changes.

In the form shown in Fig. 1, an elongated shell-pointer or projection is screw threaded at its rear end into the forward end of a shell or projectile 1, and at its forward end it carries a firing pin 3. Within the shell or projectile is an explosive charge 4, a bore or channel in the shell-pointer or projection is indicated at 5, any kind of an explosive charge including what is known as a shrapnel explosive charge is shown in a bomb form but any shape, size or kind of explosive or shrapnel charge may be used is shown at 6, a percussion cap 7, is secured in a removable cap holder as shown at 8, the forward end of the shell-pointer or projection forming a point is shown at 9, a set screw or any suitable means to hold the firing pin 3, in position is indicated at 10. A spring may be used in place of the set screw if desired. An enlarged place or head on the forward end of the firing pin is indicated at 3^a, the screw threads where the point of the shell-pointer or projection may be removed is shown at 11, the point of the shell-pointer or projection may be removed and the cap 7, and cap holder 8, may be removed and a solid plug secured or screwed in place of the cap holder in order to make the shell-pointer or projection safe for handling or shipping when desired. The cap holder may also be screwed in if desired. The explosive charges formed in the shape of a bomb within the shell-pointer or projection is shown at 12, the explosive charge in the bore or channel within the shell-pointer or projection is indicated at 13. The bore or channel may be made longitudinal or a different shape if so desired. It is shown as being longitudinal. Any suitable metal or material with or without perforated holes as shown inclosing the ends of the bomb formed explosives is shown at 14, and said ends may be made removable if desired by screwing them in or wedging them in. It will be seen that the same inclosure is used in the rear end of the bore or channel dividing the explosive charge in same and the explosive charge 18, in the combined bushing and tube 17, but the inclosure may not be perforated if desired.

The screw threads where the combined bushing and tube 17, is screwed into the shell or projectile is shown at 15, the screw threads where the rear end of the shell-pointer or projection is screwed into the combined bushing and tube 17, is indicated at 16. The driving band around the exterior of the shell or projectile is shown at 19, the breech plug or breech block which may be removed to place the explosives 4, within the shell or projectile is shown at 20; the

screw threads where the breech plug or breech block 20, is screwed into the shell or projectile is shown at 21.

The operation of Fig. 1, may be explained as follows: When the enlarged head on the forward end of the firing pin is driven inward the rear end of the firing pin explodes the percussion cap 7, thereby igniting the fuse and explosives in the most forward part of the shell-pointer or projection and the fire and force from said first explosion indicated by 6, passes through the rear perforated end 14, through the bore or channel 5, through the perforated end of the second explosive charge 6 thereby igniting same and the fire and force from same passing through the perforated end at the rear thereby igniting the explosives 13 in the bore or channel 5 and the fire and force from same passing through the perforated rear end of the bore or channel thereby igniting the explosive 18 in the combined bushing and tube 17 and exploding the thin tube part of same and thus igniting the main explosive charge 4 in the shell or projectile. It is obvious that the bore or channel 5 may be filled with explosives or a part of same or all of same may not have explosives as desired—it will be noted that there is no explosive within the bore or channel between the two bomb shape explosive charges as shown by 12 and 6.

Fig. 2 is the same as Fig. 1 in every way where the same numerals are shown and for this reason only the numerals shown in Fig. 2 that are not shown in Fig. 1 will be explained.

The screw threads where the igniting tube is screwed into the breech plug 20, is indicated at 22, with the forward end secured to rear of projection as shown at 28, the igniting tube is indicated at 23, the explosives in the igniting tube 23 is shown at 24, the perforated holes in the igniting tube are shown at 25. The igniting tube may be used with or without the perforated holes as desired and in both Fig. 1, and Fig. 2, where the perforated holes are mentioned as 14 and 25 cloth may be used to prevent the explosives from sifting or passing through the perforated holes if desired. The screw threads where an igniting tube 29, is screwed into the shell-pointer or projection is shown at 26, the screw threads where the shell-pointer or projection may be taken apart in order to remove the igniting tube 29, and load the cavity 12, with explosives and shrapnel or any charge desired is indicated at 27. The perforated holes in the igniting tube 29, is indicated at 30. This igniting tube holds the explosives and shrapnel in position and ignites the explosives 6, when the explosive 31, in the igniting tube is ignited by the explosion of the percussion cap and fuse 7.

The operation of Fig. 2, may be explained as follows: When the enlarged head 3^a, on the forward end of the firing pin is forced inward the rear end of the firing pin explodes the percussion cap and fuse 7, thereby igniting the explosives 31, in the igniting tube 29, thus igniting the explosive charges 6, 18, and 4, with the fire and force from the explosives in the perforated igniting tubes 29, and 23.

Fig 3, is very much like Fig. 2, as shown by the numerals except Fig. 3, has a plurality of firing pins and a plurality of percussion caps and other slight changes as shown and explained by the following numerals: Screw threads where the perforated tube 39, is screwed into the shell-pointer or projection is indicated at 34, the perforated holes in the perforated igniting tube 39, is indicated at 40, and the explosives in the perforated tube 39, is indicated at 40^e, the forward part of the combined firing pin and igniting tube with a removable cap holder and percussion cap secured in the forward end as shown by 7, and 8, is shown at 36. The perforated holes in the combined firing pin and igniting tube is indicated at 35, the explosives in the perforated combined firing pin and igniting tube is shown at 37. It is obvious that the firing pin may be made solid without explosives and the removable-cap holder and cap set into the forward end of the solid firing pin. It is also to be noted that the part of the firing pin carrying explosive may be made with or without perforated holes in the tubular part of the firing pin, as well as the igniting tube in which one of the percussion caps is placed. A spring which holds the combined firing pin and igniting tube in inactive position is indicated at 38. The igniting tube 39, has a removable cap holder and percusson cap secured in the forward end as shown by 7, and 8. The enlarged part of the bore or channel 5, is shown at 41. The explosives within the enlarged part of the bore or channel 5, is indicated at 42. The operation of Fig. 3, may be explained as follows: When the end of the most forward firing pin as indicated by 3, and 3^b, is forced inward the rear end of the firing pin explodes the percussion cap 7, and thus ignites the explosives 37, in the combined firing pin and igniting tube and at the same time forcing the combined firing pin and igniting tube inward and exploding the percussion cap 7, in the end of the igniting tube 39, thereby igniting the explosives in same as shown at 40^e, thus igniting the main explosive charges 6, and also igniting the explosives 13, in the bore or channel 5, and causing the explosives 42, to explode the rear end of the shell-pointer or projection indicated at 41, thereby igniting the explosives 18, in the combined bushing and tube 17, thus causing the fire from the explosion to ignite the explosive 24, in the tube 23, thereby exploding same and thus igniting the main explosive charge 4, in the shell or

projectile. The igniting tube 23, may be made with or without perforated holes as desired.

Fig. 4 may be understood by the numerals as being in principle like the other figures with slight changes indicated by additional numerals hereinafter explained as follows: A plurality of springs holding a plurality of firing pins as shown by 3, in inactive position off of a plurality of percussion caps as shown at 7, is indicated at 38^a. Screw threads where the bomb shaped explosive charge is screwed onto the shell-pointer or projection as shown is indicated at 46, and the screw threads where the shell-pointer or projection may be taken apart is shown at 48.

Fig. 4 may be understood as being operated as follows: When the most forward firing pin as shown by 3, and 3^b, is forced inward it explodes the removable percussion cap 7, and at the same time forces all of the plurality of firing pins inward and explodes the plurality of caps shown by 7, thereby igniting the explosive in the igniting tube 23, and exploding same and at the same time igniting the explosive charges 4, and 6, in the shell-pointer or projection and the shell or projectile.

Fig. 5 is fully explained in Figs. 1, and 2, except Fig. 5 shows a solid projectile 1^a. All of the shell-pointers or projections shown in Figs. 1, to 4, inclusive may be secured to this solid projectile 1^a, like shown in Fig. 5, if so desired.

Fig. 6, is exactly in every way the same as Figs. 1, 2, 3 and 5, as shown by having the same numerals with the exception numerals 7, 8, and 3, in drawings show the cap holder and firing pin has two caps and fuses and two firing pins with the forward end of the two firing pins combined in a way to form one firing pin at the forward end. This plurality of caps and fuses and firing pins together with the combined bushing and tube shown by numerals 32, and 33, may be used in the forward part of the shell-pointer or projection for the same purpose in every way as in the other figures from 1, to 5, inclusive. It is obvious that the shell and projection and the projectile and projection may be made in a way that each section will balance with each other when fired from a gun or fire-arms.

It is obvious that those skilled in the art may vary the details of the construction as well as the arrangement of parts without departing from the spirit of the invention and therefore I do not wish to be limited to the above disclosure, except as may be demanded by the claims.

What I claim as new and desire to secure by Letters Patent is:—

1. An ordnance shell or projectile having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore and a plurality of cavities for explosives in alinement with said bore within said projection, explosives within each of said plurality of cavities, percussion means and a holder for said means secured in the forward part of said projection, the projection extending straight from the forward end of the shell or projectile to near the forward end from which place it slopes to the forward end in a way to form a point on the forward end of the projection and firing pin means for detonating said percussion means secured within the said projection.

2. An ordnance shell or projectile carrying explosives within, having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within said projection, explosives secured within said longitudinal bore, a combined bushing and tube secured within the forward part of said projection in alinement with said bore, a plurality of percussion caps secured within a removable cap holder, said cap holder secured within said combined bushing and tube, explosives within said combined bushing and tube and a plurality of firing pins with the forward parts combined into one firing pin having a point formed on the forward end secured within the forward part of said projection with means to hold same in position in a way that said plurality of firing pins will explode said plurality of percussion caps upon contact with the ground, object or target, ignite the explosives within the projection and ignite the explosives within said shell or projectile with the fire and force from the explosion of the explosives within said projection.

3. An ordnance shell or projectile having explosive within and carrying explosive in front of the shell or projectile, means to ignite the explosive in front of the shell or projectile with the explosion of a plurality of caps exploded with a plurality of contact firing pins, and means to ignite the explosive within the shell or projectile with the explosion of the explosive carried in front of the shell or projectile.

4. An ordinance shell or projectile having explosive within and carrying explosive in front of the shell or projectile, means to ignite the explosive in front of the shell or projectile with the explosion of a plurality of percussion caps exploded with a plurality of contact firing pins combined into one firing pin at the forward part, and means to ignite the explosive within the shell or projectile with the explosion of the explosive carried in front of the shell or projectile.

5. An ordnance shell or projectile carrying explosives within and having a projection secured to the forward end thereof ex-

tending axially and formed with a longitudinal bore within, a cavity larger in circumference than the said longitudinal bore formed in alinement with said bore within said projection, a tube extending through said cavity in alinement with said bore, explosives secured within said tube, explosive secured within said cavity, a cap and fuse in combination with a contact firing pin secured in the forward part of said projection in a way that the contact firing pin will explode the cap upon contact with the ground, object or target and ignite the explosive within said tube within said cavity, and ignite the explosives within said shell or projectile.

6. An ordnance shell or projectile carrying explosives within and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore and a plurality of cavities larger in circumference than said longitudinal bore and in alinement with said longitudinal bore within said projection, explosives secured within each of said cavities, a cap and fuse secured within the forward part of said projection and a contact firing pin with means to hold same in position secured in the forward part of said projection in a way to explode said cap upon contact with the ground, object or target and ignite said explosives within each of said plurality of cavities within said projection and ignite said explosives within said shell or projectile.

7. An ordnance shell or projectile with a cavity within, explosives within said cavity, a combined bushing and tube with bushing part screwthreaded into the forward part of said shell or projectile and said tube part of said combined bushing and tube extending into said cavity within said shell, or projectile, explosive secured within said combined bushing and tube and having a projection with the rear end screw threaded into said combined bushing and tube within the forward part of said shell or projectile, said projection extending axially, a bore and a cavity larger in circumference than said bore and in alinement with said bore formed within said projection, explosives secured within said cavity, means to remove the forward part of said projection, a cap and fuse secured within said projection, a point formed on the forward end of said projection, and a contact firing pin with means to hold same in position secured within said point on the forward end of said projection in a way to explode said cap upon contact with the ground, object or target, and ignite the explosives within said cavity within said projection, ignite the explosives within said combined bushing and tube, and ignite said explosives within said shell or projectile.

8. An ordnance shell or projectile carrying explosives within, and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore and a cavity larger in circumference than said longitudinal bore and in alinement with said bore within said projection, a plurality of caps and fuses in a cap holder secured in the forward part of said projection and a plurality of firing pins secured in the forward part of said projection in a way to explode said plurality of caps upon contact with the ground, object or target, and ignite said explosives within said cavity within said projection and ignite said explosives within said shell or projectile.

9. An ordnance shell or projectile with explosives within and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within, said longitudinal bore having a plurality of enlarged parts in spaced relation, explosives secured within said plurality of enlarged parts of said longitudinal bore, a cap and fuse secured in the forward part of said longitudinal bore and a contact firing pin secured in the forward part of said projection in a way to explode said cap upon contact with the ground, object or target, means to ignite the explosives within said plurality of enlarged parts of the longitudinal bore and means to ignite the explosives within said shell or projectile.

10. An ordnance shell or projectile carrying explosives and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within, said longitudinal bore having a plurality of enlarged parts in spaced relation, explosives secured within said plurality of enlarged parts of said longitudinal bore, a plurality of caps and fuses secured in the forward part of said longitudinal bore and a plurality of contact firing pins secured in the forward part of said projection in a way to explode said plurality of caps upon contact with the ground, object or target, means to ignite the explosives within said plurality of enlarged parts of the longitudinal bore and means to ignite the explosives within said shell or projectile.

11. An ordnance shell or projectile carrying explosives and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within, said longitudinal bore having an enlarged part, explosives within said enlarged part of said longitudinal bore, a cap and fuse secured in the forward part of said longitudinal bore and a contact firing pin secured in the forward part of said projection in a way to explode said cap upon contact with the ground, object or target, means to ignite the explosives within said enlarged

part of the longitudinal bore and means to ignite said explosives within said shell or projectile.

12. An ordnance shell or projectile carrying explosives and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within, said longitudinal bore having an enlarged part, explosives within said enlarged part of said longitudinal bore, a plurality of caps and fuses secured in the forward part of said longitudinal bore and a plurality of contact firing pins secured in the forward part of said projection in a way to explode said plurality of caps upon contact with the ground, object or target, means to ignite the explosives within said enlarged part of the longitudinal bore and means to ignite said explosives within said shell or projectile.

13. An ordnance shell or projectile having a cavity for explosives within and having a projection secured to the forward end thereof extending axially and formed with a longitudinal bore within, said longitudinal bore having a plurality of enlarged parts in spaced relation, a tube extending through each of said enlarged parts of said longitudinal bore and in alinement with said bore, a tube extending from the rear end of said bore through the cavity within the shell or projectile in alinement with said bore, said tubes and said bore having explosives within, separate explosives within the cavity within the shell or projectile, separate explosives within each of said enlarged parts of said longitudinal bore within said projection and means to ignite the explosives within said tubes and longitudinal bore within said projection and said shell or projectile.

In testimony that I claim the foregoing, I have hereunto set my hand.

ROBERT LEE WRIGHT.