(No Model.)

H. P. HURST.

SHELL.

No. 372,753. Patented Nov. 8, 1887.

Fig. 1.

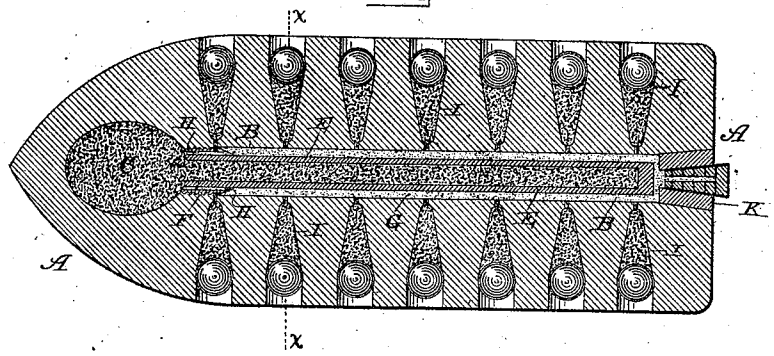


Fig. 2.

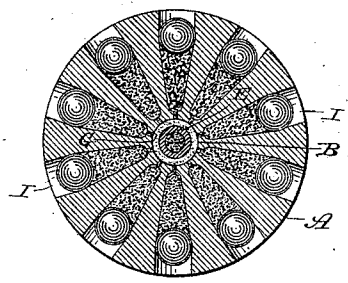


Fig. 3.

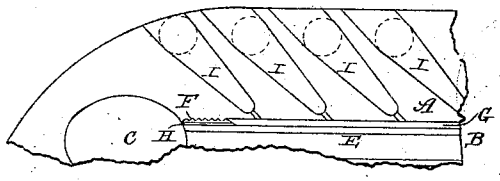


Fig. 4.

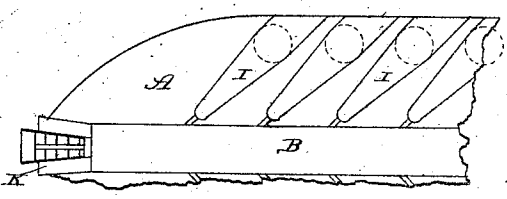
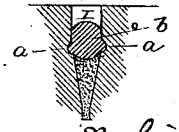


Fig. 5.



Fig. 6.



Witnesses

J. W. Garner

S. A. Jones

Inventor

Harris P. Hurst

By his Attorneys

Freeman and Mooney.

UNITED STATES PATENT OFFICE.

HARRIS P. HURST, OF SUMMIT, MISSISSIPPI.

SHELL.

SPECIFICATION forming part of Letters Patent No. 372,753, dated November 8, 1887.

Application filed January 8, 1887. Serial No. 223,771. (No model.)

To all whom it may concern:

Be it known that I, HARRIS P. HURST, a citizen of the United States, residing at Summit, in the county of Pike and State of Mississippi, have invented certain new and useful Improvements in Projectiles for Ordnance; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in projectiles for ordnance; and it consists in a projectile having a longitudinal fuse or ignition chamber and radial charge-chambers communicating at their inner ends with the fuse or ignition chamber, whereby the said charge-chambers will be discharged during the flight of the projectile.

My invention further consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal central sectional view of a projectile embodying my improvements. Fig. 2 is a transverse sectional view of the same, taken on the line *x x* of Fig. 1. Figs. 3 and 4 illustrate modified forms of my invention. Fig. 5 is a detail sectional view of a fixed charge of powder and ball for one of the chambers of the shell, arranged in the form of cartridge. Fig. 6 is a detail sectional view of a modification, showing the manner of firmly securing a ball in a charge-chamber.

A represents an elongated projectile, which is made of iron or steel, and is provided with a central longitudinal bore or chamber, B, which extends nearly throughout the length of the projectile, and is open at its rear end. The front end of the bore or chamber B is enlarged to form a chamber, C, in the head of the projectile.

E represents a hollow tube which is located in the bore of the projectile. The front end of the tube is gradually enlarged to enable it to snugly fit in the front end of the bore, as at F, the remaining portion of the tube being of less diameter than the diameter of the bore, and thereby an annular chamber, G, is formed longitudinally in the center of the projectile, and surrounding the tube. The rear end of the latter is closed, and its front end is open and communicates with the chamber C. Channels H are made in the sides of the enlarged portion F of the tube to communicate with the chambers C and G.

The projectile is honeycombed and provided throughout nearly its entire length with a series of radial chambers, I, of any desired caliber. The inner ends of these chambers communicate with the central chamber, G, and the said chambers I may be arranged with their major axes at right angles to the major axis of the projectile, as shown at Figs. 1 and 2; or the said chambers I may be inclined either forwardly, as shown in Fig. 3, or rearwardly, as shown in Fig. 4.

Each radial chamber I is loaded with powder and ball, the chamber C and the hollow tube are charged with powder, and the annular chamber G is charged with a suitable fulminating-fuse or slow-burning powder. A time-fuse, K, is placed over the rear end of the chamber G, and is adapted to ignite the contents of the chamber G at any desired length of time after the projectile has been fired from the cannon and while the projectile is in flight. The projectile is adapted to be used with effect against bodies of troops either at long or short ranges, and the operation of the same is as follows:

The time-fuse is cut to cause the fulminating-fuse powder to be ignited at the desired distance from the gun, and as the projectile is in flight through or over the body of men at whom the piece was pointed the charges in the chambers I, are successively ignited by the fulminating-fuse powder, thereby discharging the balls or projectiles in the said chambers laterally from the projectile, and causing at least a portion of them to take effect. After all of the chambers I have been discharged, the fulminating-fuse powder ignites the powder in the chambers C and in the hollow tube, thereby exploding the projectile and blowing it to fragments with great destructive force.

When the projectile is to be used against troops formed in open line of battle, and not in columns or solid masses, the chamber G will be charged with an instantaneous rapid-burning detonating powder, so that all the chambers I will be discharged at once. In this event the tube E is omitted from the chamber D, as shown at Fig. 4. In the said figure I also illustrate the time-fuse at the front end of the projectile, as it is sometimes desirable to locate the time-fuse at the front end thereof, instead of at the rear end, and I do not desire to limit myself in this particular.

In Fig. 5 I show a fixed cartridge-charge of powder and ball for one of the radial chambers.

Having thus described my invention, I claim—

1. A projectile having the longitudinal charge-chamber C, a fuse-chamber, G, surrounding the same, and having suitable fuse-charge, and the radial charge-chambers I, communicating at their inner ends with the chamber G, for the purpose set forth, substantially as described.

2. A projectile having the longitudinal fuse-chamber G, the radial charge-chambers I, communicating at their inner ends with the fuse-chamber G, and the charge-chamber C, surrounded by and communicating with the chamber G near the extremity thereof, for the purpose set forth, substantially as described.

3. A projectile having a longitudinal charge-chamber, a fuse-chamber surrounding the same, connecting at one end with such charge-chamber and having a primer connecting with the half of the fuse-chamber remote from the passage connecting with the charge-chamber, and a series of radial charge-chambers connecting with the fuse-chamber, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HARRIS P. HURST.

Witnesses:
S. A. TERRY,
J. W. GARNER.