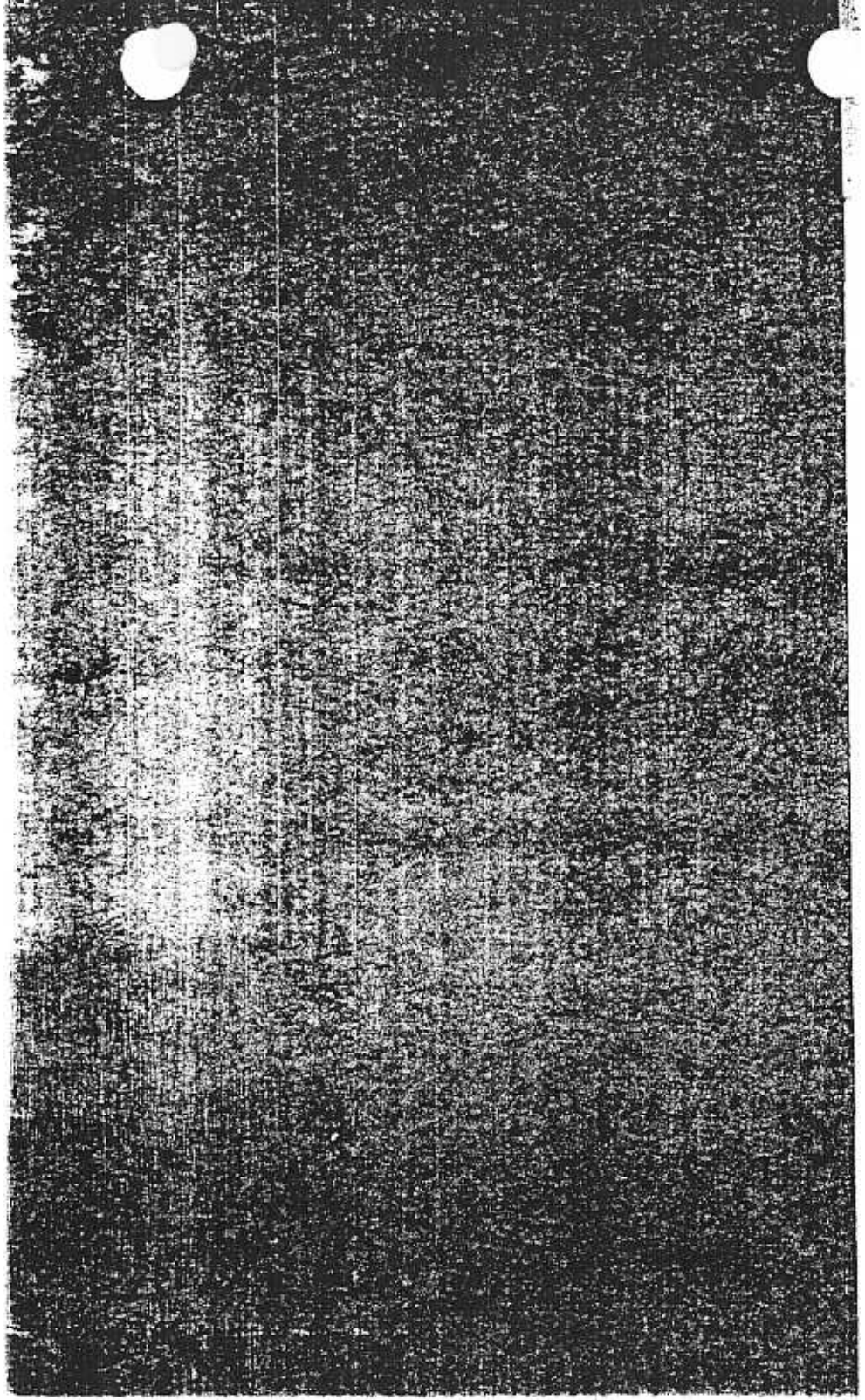

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DESCR PTION AND NSTRUCT ON
FOR THE USE OF

V B. RIFLE GRENADE MARK

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WAR DEPARTMENT.

OFFICE OF THE CHIEF OF ORDNANCE,

Washington, October 25, 1917.

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BY ORDER OF THE SECRETARY OF WAR:

WILLIAM CROZIER,

Major General, Chief of Ordnance.

DESCRIPTION AND INSTRUCTIONS

FOR THE USE OF

V. B. RIFLE GRENADE, MARK I.

Rifle grenades are designed to utilize the gases from a rifle cartridge as a propelling force to throw the grenade. The Viven-Bessiere (V.-B.) Rifle Grenade is shot from a discharger (shown in Plate II) by means of the gases resulting from firing an ordinary service cartridge. It is the only grenade of its type in use at the present time. Nearly all other rifle grenades, notably the English No. 8, better known as Hales Rifle Grenade and the American Babbitt Rifle Grenade, are fitted with a stem, which is inserted into the muzzle of the rifle. The grenade is shot forward by the pressure of the gases formed by firing a special blank cartridge, with which the rifle is loaded. The range is regulated by the distance the stem is inserted into the muzzle of the rifle, the maximum range being about 330 yards.

The V.-B. Rifle Grenade, as adopted by the United States Government, differs from these in being unequipped with a stem. The discharger is attached to the muzzle of the rifle and either one or two grenades, as desired, are inserted. In place of the special blank cartridge, the rifle is loaded with an ordinary service cartridge, which serves a double purpose. The bullet passes through the barrel of the rifle and the central tube of the grenade, forcing the striker against the primer and igniting the fuze. The gases generated by firing the cartridge collect in the lower chamber of the discharger and exert a pressure on the base of the grenade great enough to propel the latter a distance of 200 yards, which is its maximum range when only one grenade is fired at one time.

NOMENCLATURE.

The construction of the grenade and discharger and the names of their parts are included on Plates I and II.

GRENADE (Plate I).

Key to plate.	Number of pieces.	Name of part.	Material.
	1	Body	Malleable iron.
	1	Central tube	Copper.
	1	Lateral tube	Steel.
	1	Fuse container	Brass.
	1	Cup	Vulcanized rubber.
	1	Filling plug	Lead.
	1	Screw plug	Do.
	1	Striker	Steel.
	1	Primer (cap)	Standard.
	1	Fuse	Meal and loose powder.
	1	Detonator	Standard No. 6.
	(ns.) 1½	Main charge	T. N. T. (or its equivalent).
	2	Plugs	Wax.

DISCHARGER (Plate II).

Key to plate.	Number of pieces.	Name of part.	Material.
AA	1	Discharger	Forged steel.
BB	1	Spring	Steel.
CC	2	Screws	Do.

DETAILED DESCRIPTION OF GRENADE AND DISCHARGER.

GRENADE.

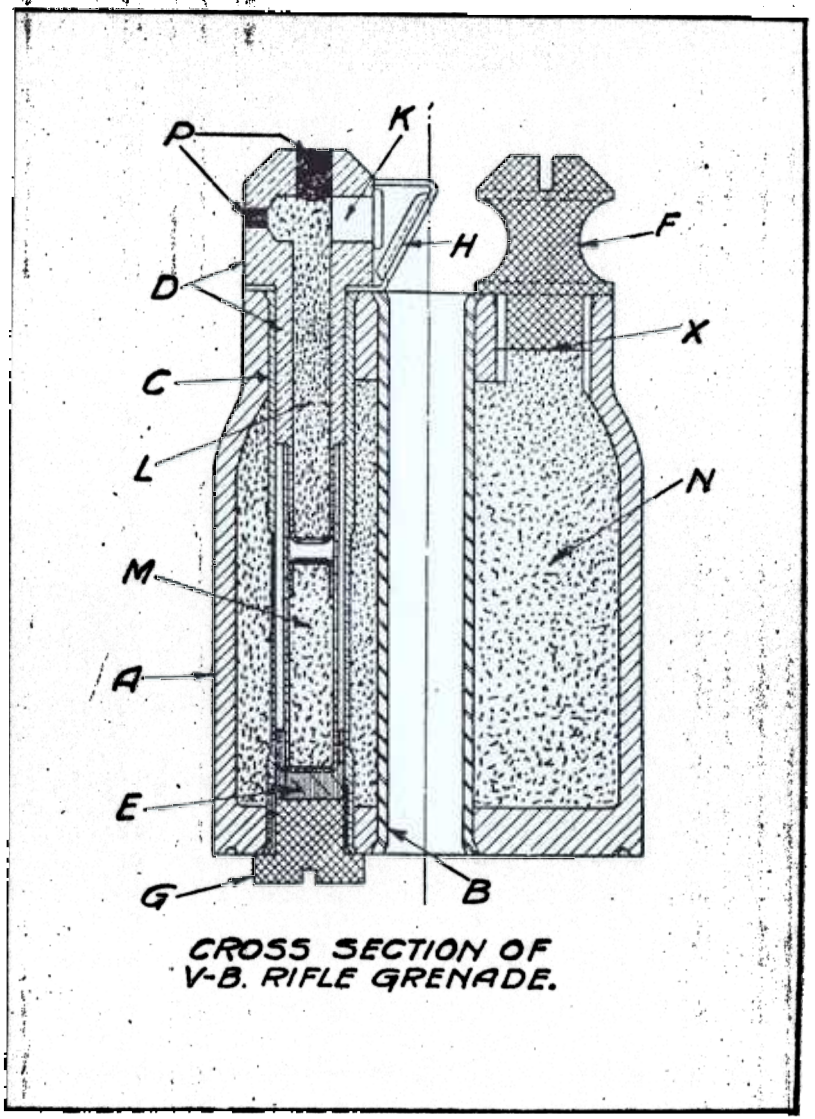
The grenade (see Plate I) is approximately 2½ inches in length by 2 inches in diameter, and weighs, when loaded ready to fire, 17¼ ounces. The *body* (A) is divided on the inside surface into 40 parts by deep grooves in order to insure proper fragmentation. The grooves are usually on the outside of grenades, but on account of the discharger used in firing the V. B. Grenade, an *inside* division by grooves is necessary, so that a close fit may be secured between the outside of the grenade and the discharger, thus allowing the gases from the cartridge to exert a maximum pressure on the base of the grenade in propelling it. If the grenade were grooved externally, the gases would escape through the grooves and most of the pressure would be lost.

The *central tube* (B) and the *lateral tube* (C) are expanded into the machined holes of the *body* (A), the *central tube* (B) having its ends beveled on the inside to permit the free passage of the bullet. The walls of the *lateral tube* (C) are made thin at the point which surrounds the *detonator* (M) to insure its bursting when the *detonator* explodes. This *tube* (C) is also carefully reamed at the upper end to a size that will insure a tight fit with the *fuze container* (D) and its lower end is tapped to receive the *screw plug* (G) which holds the *detonator* (M) in position by means of the intervening *soft rubber cup* (E).

The *fuze container* (D) is provided with a hole for the *primer* (K), a loading hole in the top through which the meal and loose powder are inserted, and a vent opposite the *primer* (K). After loading the *fuze* (L), the loading hole and vent are plugged with *wax plugs* (P) to protect the powder train. These *plugs* (P) are blown out by the explosion of the *primer* (K), thus affording an ample vent for the gases from the *fuze* (L), and preventing a premature bursting of the grenade, which would be caused by the gases reaching the *detonator* (M). The *fuze container* (D) which is machined on the lower end to a size which will allow the upper end of the *detonator* (M) to fit over it. is forced into the *lateral tube* (C), through the hole in the end of the *striker* (H), and thus holds the latter in position. The *striker* (H) is punched from sheet steel.

One end of the *detonator* (M) is left open. This end is inserted in the lower end of the *lateral tube* (C) and overlaps the lower end

of the *fuze container* (D). The *rubber cup* (E) i placed over the lower end of the *detonator* (M) and both parts are held in position by the *screw plug* (G). This arrangement of the *detonator* (M) at the top and the *rubber cup* (E) at the bottom, prevents the *detonator* from receiving any shock from the plug end or by being



CROSS SECTION OF V-B. RIFLE GRENADE.

Plate I.

in too close contact with the walls of the *lateral tube* (C). It is entirely a safety device.

The grenade is loaded with the *main charge* (N) through the *loading hole* (X) and protected by the *filling plug* (F).

DISCHARGER.

The discharger (see Plate II) consists of the *discharger proper* (AA), a *locking spring* (BB), and two *screws* (CC), which hold the

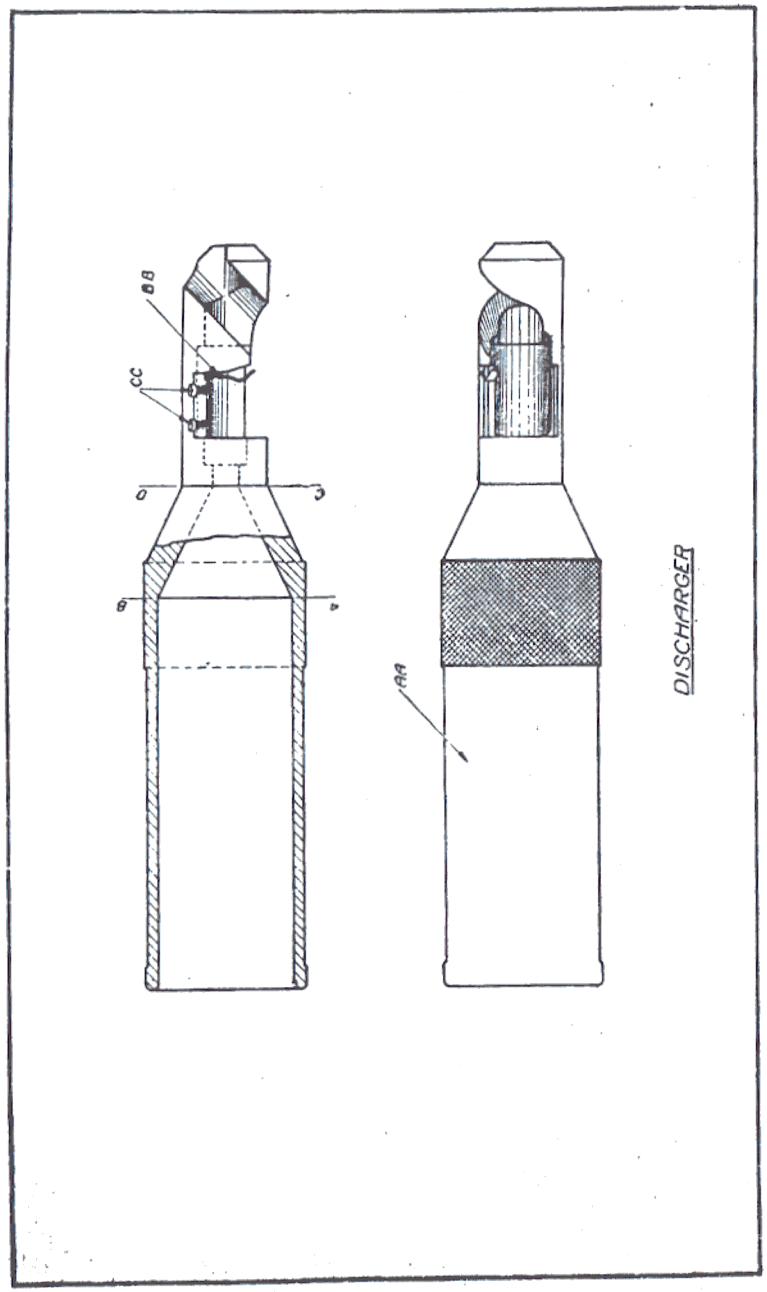


Plate II.

spring to the discharger. The small or lower end is slotted so that it will receive the part of the barrel which is immediately below the

front sight. Above this slot there is another slot which will permit the discharger to be twisted around the front sight of the rifle. The *spring* (BB) is screwed to one side of the slot in such a manner that

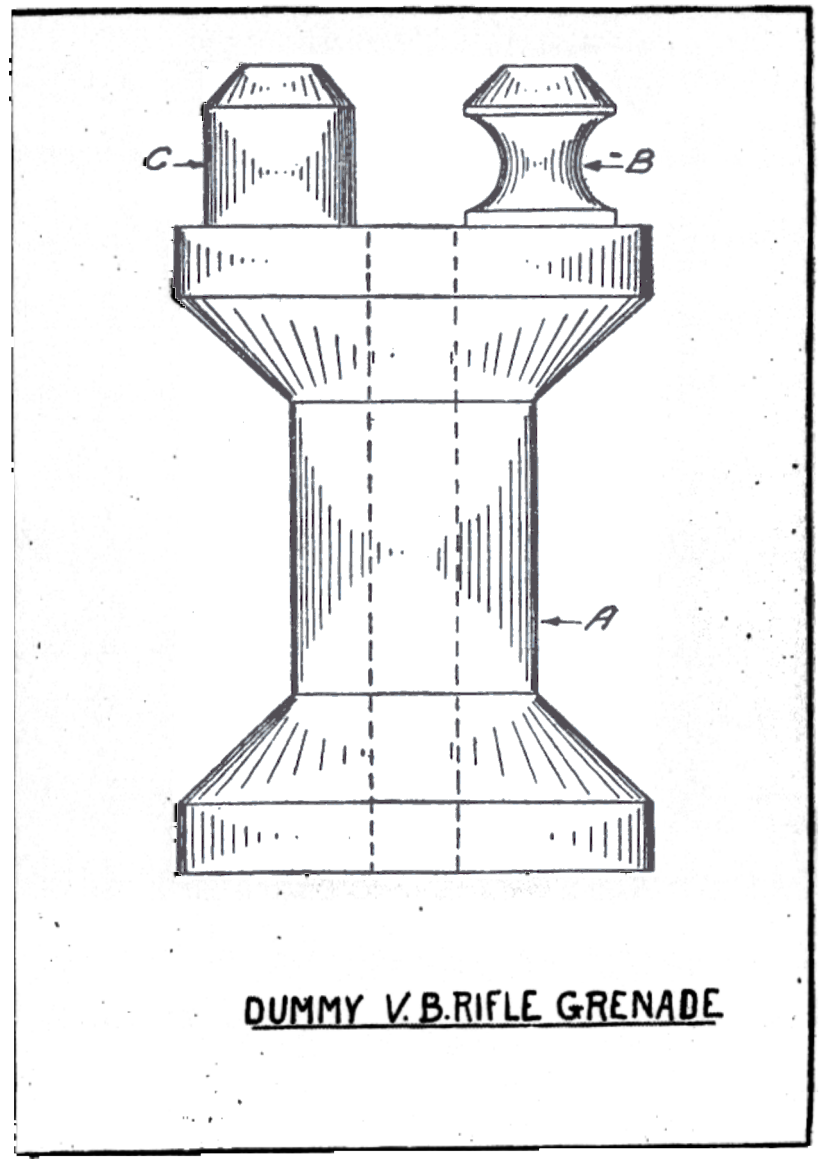


Plate III.

it will pass under the front sight, and thus hold the discharger firmly to the rifle.

The 1917 model has a band of knurling to distinguish it from the 1908 model. Do not try to use a 1917 discharger on a 1908 rifle or

The space between the lines A B (the point at which the grenade stops) and C D is designed in order to allow the gases from the cartridge to collect and hence to propel the grenade. The discharger is made thicker at this point to withstand the pressure of the gases; the increased thickness of the large end is designed for the same purpose.

ACTION AND OPERATION OF THE GRENADE.

The discharger is fitted into the rifle, one or two grenades (as desired) are put into the discharger, and the rifle is loaded with an ordinary service cartridge. *The grenade is now ready for firing.*

On firing the cartridge the bullet passes through the barrel of the rifle and through the *central tube* (B) of the grenade, forcing the *striker* (H) against the *primer* (K). At the same time the gases from the cartridge collect in the chamber of the discharger under the grenade and throw the grenade from the discharger. Experience has shown that the *striker* (H) is always destroyed by the impact of the bullet, but the clearance between the *primer* (K) and the *striker* (H) is so small that the *primer* never fails to go off. The explosion of the *primer* ignites the *fuse* (L), which is timed to burn eight seconds, when it explodes the *detonator* (M). The *detonator* in turn explodes the *main charge* (N), which causes the fragmentation of the grenade.

DUMMY V.–B. RIFLE GRENADE.

The dummy rifle grenade is an iron casting with a hole left through the center to represent the central tube and to allow the bullet to pass through when using the grenade. The filling plug and the top of the fuze container are cast with the body, making the whole grenade one piece. No parts of the service grenade are represented in the dummy except those shown in Plate III, viz: *Body* (A), *filling plug* (B), and *fuze container* (C). The weight of the dummy, 17¼ ounces, is the same as that of the service grenade. The weight is regulated by cutting out the sides of the body as shown in the plate.

The dummy rifle grenade is used in the same manner as the loaded grenade.

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