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# Hand Grenade

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**The hand grenade is a small hand-thrown bomb dating back to antiquity. Advances in chemistry and explosives technology saw the resurgence of the grenade shortly before World War I. Its effective use marked the weapon as an indispensable armament in modern warfare.**

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## Introduction

Hand grenades were nothing new at the start of World War I. Small hand-thrown explosive bombs date back to the 8<sup>th</sup> century, when Byzantine soldiers packed Greek fire into ceramic vessels, and to 10<sup>th</sup> century China, when gunpowder charges were loaded into fused clay containers. This weapons technology fell in and out of use over time, seeing ample use in the siege warfare of the 15<sup>th</sup> century, even giving rise to specialists at that time – *Grenadiers* – but falling out of favor as technology progressed and maneuver warfare again became predominant. With the rapid progress in industry and technology in the late 19<sup>th</sup> century, the hand grenade once again appeared on the battlefield. At the beginning of the 20<sup>th</sup> century, the modern hand grenade took on its current form.

## Development

Hand grenades used in World War I were hand-thrown bombs filled with explosive material (TNT, amatol, or cheddite) and typically either impact or time-detonated. The first British grenade, the Mark 1 developed in 1908, was mounted on a long, sixteen-inch throwing handle and detonated on impact, while early French F-1 (*Fusante No 1*) grenades, first produced in 1915, were equipped with a percussion cap system igniting a timed fuse. The contemporary German grenade, the Model 24 *Stiehlhandgranate* ("stick grenade"), was also equipped with a throwing handle and a timed fuse ignited via pull-string striker. Some World War I grenades, especially early in the war while warring nations were still increasing [weapons](#) production, were improvised devices of little more than explosives and fragments loaded into tin cans such as the Australian "Jam Tin Grenade" with a fuse which had to be lit before being thrown. When the British Mark 1 proved unsatisfactory, it was succeeded by the Mark 5 "Mills Bomb" beginning in 1915. The Germans also fielded improved grenades such as the Model 17 *Eierhandgranate*, or "Egg Grenade."

## Characteristics

Grenades varied in weight from the eleven ounce (310 g) German Egg Grenade to the nineteen ounce (550 g) French F-1, to the twenty-one ounce (595 g) German Model 24, to over twenty-four ounces (680 g) for the British Mark 5 Mills Bomb. Likewise, the maximum range varied based on the weight of the grenade and the capabilities of the thrower but was generally considered to be between thirty and forty yards (twenty-seven to 36.5 meters). The various hand grenades were classified, either as offensive, or "concussion," hand grenades, which were designed to produce blast and concussion but relatively little fragmentation, thereby decreasing the risk to advancing soldiers; or as defensive or "fragmentation" grenades, which produced more fragmentation. Some, like the German Model 24, could be converted from an offensive grenade to a fragmentation grenade by addition of a pre-fragmented sleeve or "*Splinterring*."

Most grenade designs such as the British Mills Bomb and the German Stick and Egg Grenades served into World War II. The French F-1 was so popular that it was issued to both the [United States](#) and Soviet Union and served as the basis for the US Mk I and Mk II "Pineapple" grenades and the Soviet F-1.

## Operational Use

Used by every major belligerent in the First World War, grenades were initially seen as a solution to the stalemate of trench warfare and since grenade employment focused on trench clearing, early organization and employment techniques were similar for both sides. British forces employed a "bombing reserve" composed of nine soldiers. Led by a non-commissioned officer, these specialists included two grenade throwers, two grenade carriers, two bayonet men, and two soldiers in reserve. Another type of Allied "bombing squad," also composed of nine soldiers, was led by one team of four: a point man, a grenadier, a grenade carrier, and the team leader, followed by the squad leader and

another four-man team. French *escouades de grenadiers* (grenade thrower sections), which were mirrored by American forces upon their arrival in 1917, included two grenadiers, two assistant grenadiers, two grenade carriers and one reserve soldier, all led by a corporal. The Germans initially manned their *Handgranatentruppen* (hand grenade teams) with six to eight volunteers who were selected based on their courage and strength to conduct the mission. This was formalized by 1916 into a nine-man *Handgranatengruppe* (hand grenade squad), similar to Allied formations. Operating in close proximity to the enemy, i.e. within the hand grenade throwing range of twenty to forty-five yards (eighteen to forty-one meters), the hand grenade formations were armed with pistols and knives for close quarters fighting, in addition to standard [rifles](#) and [bayonets](#).

## Conclusion

Exact figures of casualties caused by hand grenades are impossible to obtain although British records estimate that around 2 to 2.5 percent of all [casualties](#) were caused by hand grenades in World War I. Still, the capabilities afforded by hand-thrown explosives were both viable and effective and gave rise to a variety of specialized grenades including concealing and colored (signaling) smoke, tear gas, and even longer range rifle-launched grenades, all of which remain in use today.

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