

# The impact of inventions and discoveries made before and during WWI

Tanks - Powered by a small internal combustion engine burning diesel or gas, a heavily-armored vehicle could advance even in the face of overwhelming small arms fire. Add some serious guns and replace the wheels with armored treads to handle rough terrain, and the tank was born.

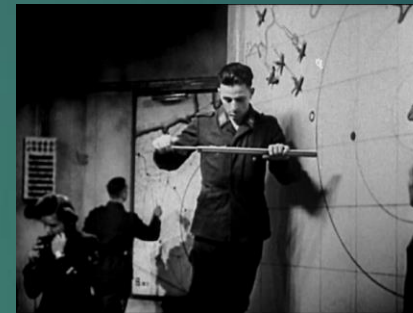


Flamethrowers - the first design for a modern flamethrower was submitted to the German Army by Richard Fiedler in 1901, and the devices were tested by the Germans with an experimental detachment in 1911. Their true potential was only realized during trench warfare, however. After a massed assault on enemy lines, it wasn't uncommon for enemy soldiers to hole up in bunkers and dugouts hollowed into the side of the trenches

Poison Gas - The Germans pioneered the large-scale use of chemical weapons with a gas attack on Russian positions on January 31, 1915, during the Battle of Bolimov, but low temperatures froze the poison (xylyl bromide) in the shells. The first successful use of chemical weapons occurred on April 22, 1915, near Ypres, when the Germans sprayed chlorine gas from large cylinders towards trenches held by French colonial troops.



Interrupter Gear - After the Swiss engineer Franz Schneider patented his idea for an interrupter gear in 1913, a finished version was presented by Dutch designer Anthony Fokker, whose "synchronizer," centered on a cam attached to the propeller shaft, allowed a machine gun to fire between the blades of a spinning propeller.



Air Traffic Control - In the first days of flight, once a plane left the ground the pilot was pretty much isolated from the terrestrial world, unable to receive any information aside from obvious signals using flags or lamps. This changed thanks to the efforts of the U.S. Army, which installed the first operational two-way radios in planes during the Great War

Aircraft carriers - The first real aircraft carrier was the *HMS Furious*, which began life as a 786-foot-long battle cruiser equipped with two massive 18-inch guns—until British naval designers figured out that these guns were so large they might shake the ship to pieces. Looking for another use for the vessel, they built a long platform capable of both launching and landing airplanes.

