

Gas mask introduce

A [gas mask](#) is a device designed to protect the wearer from noxious vapors, dust, and other pollutants. Masks may be designed to carry their own internal supply of fresh air, or they may be outfitted with a filter to screen out harmful contaminants. The latter type, known as an Air Purifying Respirator (APR), consists of a tight-fitting face piece that contains one or more filter cartridges, an exhalation valve, and transparent eye pieces. The first APR was patented in 1914 by Garret Morgan of Cleveland, Ohio, an African American inventor also credited with major improvements in the traffic signal. When the Cleveland Waterworks exploded in 1916, Morgan showed the value of his invention by entering the gas-filled tunnel under Lake Erie to rescue workers. Morgan's device later evolved into the gas mask, used in World War I to protect soldiers against chemicals used in warfare.

A [gas mask](#) is a mask put on over the face to protect the wearer from inhaling "airborne pollutants" and toxic gases. The mask forms a sealed cover over the nose and mouth, but may also cover the eyes and other vulnerable soft tissues of the face. Some gas masks are also respirators, though the word gas mask is often used to refer to military equipment (e.g. Field Protective Mask, etc.) (The user of the gas mask is not protected from gas that the skin can absorb.)

The traditional [gas mask](#) style with two small circular eye windows originated when the only suitable material for these eye windows was glass or perspex; as glass is notoriously brittle, glass eye windows had to be kept small and thick. Later, discovery of polycarbonate allowed gas masks with a big full-face window. Some have one or two filters attached to the face piece. Some have a large filter connected to the face piece by a hose.

Inventions that aid and protect the ability to breath where gas, smoke or other poisonous fumes exist, were being made before the first use of modern chemical weapons.

Modern chemical warfare began on April 22, 1915, when German soldiers first used chlorine gas to attack the French in Ypres.

Long before 1915, miners, firemen, and underwater divers all had a need for helmets that could provide breathable air, and the early prototypes for gas masks were developed to meet those needs.

Early Fire Fighting and Diving Masks

In 1823, brothers, John and Charles Deane patented a smoke protecting apparatus for firemen that was later modified for underwater divers. In 1819, Augustus Siebe marketed an early diving suit. Siebe's suit included a helmet to which air was pumped via a tube to the helmet and spent air escaped from another tube. The inventor founded Siebe, Gorman and Co, a company that developed and manufactured respirators for a variety of purposes and was later instrumental in developing defense respirators.

In 1849, Lewis P. Haslett patented an "Inhaler or Lung Protector," the first U.S. patent (#6529) issued for an air purifying respirator. Haslett's device filtered dust from the air. In 1854, Scottish chemist John Stenhouse invented a simple [gas mask](#) that used charcoal to filter noxious gases.

In 1860, Frenchmen, Benoit Rouquayrol and Auguste Denayrouse invented the Résevoir-Régulateur, intended for use in rescuing miners in flooded mines, the Résevoir-Régulateur could be used underwater. The device was made up of a nose clip, and a mouthpiece attached to an air tank that the rescue worker carried on his back.

Garrett Morgan

American, Garrett Morgan patented the Morgan safety hood and smoke protector in 1914. Two years later, Garrett Morgan made national news when his [gas mask](#) was used to rescue 32 men trapped during an explosion in an underground tunnel 250 feet beneath Lake Erie. The publicity sold the safety hood to firehouses across the United States. Some historians cite the Morgan design as the basis for early U.S. army gas masks used during WW1, others do not.

Early air filters include simple devices such as a soaked handkerchief held over the nose and mouth. Those devices evolved into various hoods worn over the head and soaked with protective chemicals, goggles for the eyes and later filters drums were added.

Carbon Monoxide Respirator

The British built a carbon monoxide respirator for use during WW1 in February 1915, before the first use of chemical gas weapons. It was discovered that unexploded enemy shells gave off high enough levels of carbon monoxide to kill soldiers in the trenches, foxholes, and other contained environments. Similar, to the dangers of the exhaust from a car with its engine turned on in an enclosed garage.

Cluny Macpherson

Canadian, Cluny Macpherson designed a fabric 'smoke helmet' with a single exhaling tube, impregnated with chemical sorbents to defeat the airborne chlorine used in the gas attacks. Macpherson's designs were used and modified by allied forces and are considered the first to be used to protect against chemical weapons.