

Fire Extinguisher Encyclopedia Article

Fire Extinguisher

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George William Manby (1765-1854) invented the first fire extinguisher in 1813. Manby, who had been a member of the British militia, had observed the inability of firemen in Edinburgh to reach the upper floors of burning buildings and was inspired to create a means of remedying that difficulty. Manby's extinguisher consisted of a four-gallon copper cylinder which held three gallons of water; the remainder contained compressed air. When the stopcock at the top of the cylinder was engaged, the compressed water would be forced out through a tube running from the valve to the inside base of the cylinder and directed toward the fire. In 1866, Frenchman Francois Carlier invented an extinguisher which had a cylinder containing a mixture of water and bicarbonate of soda and a separate bottle filled with sulfuric acid. When the bottle was punctured, the acid mixed with the bicarbonate, producing carbonic acid which, when it bubbled, forced the water out. A Russian, Alexander Laurent, developed a solution of aluminum sulfate and bicarbonate of soda in 1905. The carbonic acid bubbles themselves, rather than water, were forced out of the cylinder, smothering the fire. Laurent's device was meant to be used on oil-based and electrical fires, against which water is useless. During World War II, a commercial product called Aero Foam, a derivative of soy protein, was invented by Percy L. Julian and used by the United States' military. Modern fire extinguishers have an inner cartridge containing carbon dioxide that acts as a pressurizing agent. When the operating valve is pressed, the gas is released into the main cylinder and forces the extinguishing agent, whether water, foam, or powder, through a nozzle. Entire buildings are now required to have fire extinguishing sprinkler systems; these are installed in the ceilings and are heat-activated.