



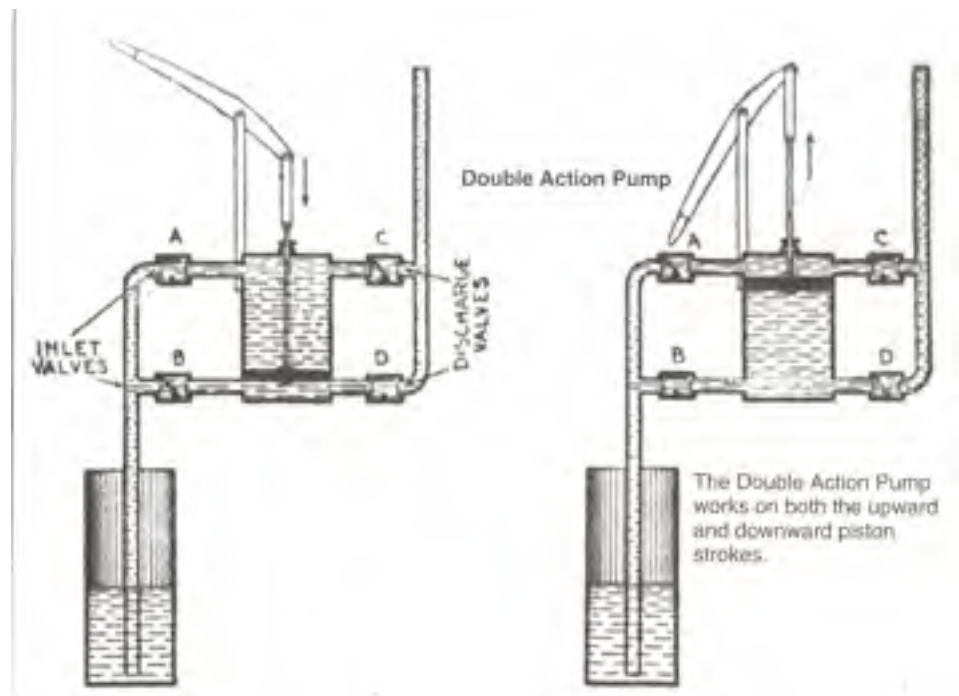
Engines Part 1: The Pumper

One of the oldest problems in firefighting is the question of how to supply water to the fire. While early firefighters used bucket brigades, they had to have access to a large source of standing water such as a cistern or a natural river in order to provide enough water to put out the fire. As a result, an engine called a “pumper” was devised to become the fire department’s portable water source. While these engines initially were somewhat ineffective, the pumpers used today are capable of carrying large quantities of water and blasting it in a continuous pressurized stream at the fire with incredible force.

The first early attempt to create a pumper dates back to second century Egypt when an Alexandrian named Ctesibus created a basic hand pump with the ability to squirt a jet of water. A century later, another Alexandrian called Hero described the invention called the Hero’s Fountain, which consisted of two large connected cylinders. As one of the cylinders drew water in, the other pushed the water out, creating a more continuous flow. However, as the entire apparatus had to be submerged in a body of water to fill it, it was not always convenient to use. Firefighters in Rome were also accustomed to carrying hand squinters, which resembled a large syringe like the kind seen in a doctor’s office.

By the sixteenth and seventeenth century, the first primitive fire engines had been created and resembled a large tub of water on runners or wheels that were used as a water source for bucket brigades. Later engines incorporated a hand pump to force water at the scene of the fire, and with the invention of the suction hose, could also draw water from rivers. In 1721, the hand pumper was again improved by London button maker Richard Newsham. The new pumper was an

improvement as it used pistons, levers, and air reservoirs to create a greater stream of water. The largest of these pumpers could deliver 160 gallons per minute while producing a 50 meter jet of water. Within a decade, two of these pumpers had been imported to New York.



The fire companies of Denver acquired their first pumper in 1867, the hand-drawn Gleason and Bailey manual pumper pictured here. The curved red painted shaft and black metal crossbeam at the front of the rig was used to steer the apparatus while firemen gripping the red drag rope, which connects to the crossbeam from two reels underneath the rig, would provide the manpower necessary to pull the pumper. When they reached the fire, the volunteers would lower the side brakes, the long wooden shafts attached to the metal arms seen at the top of the pumper. They would then pump the brakes up and down causing the pistons in the arms to move the water. This particular pumper received its water from the draft, meaning that the black hose sections seen on top of the pumper between the side brakes would be attached to the back of the machine and fed to a water source. The hose would then use suction to pull water into the machine while it was simultaneously being ejected from the hose lines connected to the front. As most pumpers weighed approximately 2500 lbs and required a lot of effort to use, a crew of twelve to fifteen volunteer firemen was responsible to drag the machine to the scene and then to operate the pumps. Often times there would be two or three separate crews since pulling the engine and pumping the water required so much effort, the original crew often tired quickly. This 1867 hand pumper served Denver for five years and was subsequently sold to Del Norte, Colorado.

The featured podcast is an interview with retired Denver firefighter Jerry Michals in which he describes the circumstances that lead to the purchase of the pumper as well as why it was sold within so short a time.