

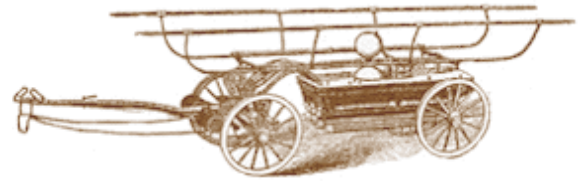


A BREIF HISTORY OF THE FIRE HYDRANT

Before there were water distribution systems, water for fighting fires was available only from natural sources, such as rivers, lakes, and ponds, or from cisterns or barrels kept filled with water. Movie makers still commonly show an image of a bucket brigade, or a horse drawn carriage with a tank of water in the back in movies of the old west.



The first large water distribution systems were built during the seventeenth century in cities such as London and Boston. These earliest water mains were made by boring out logs which were then buried under the roads. When water was needed for fighting fires, a hole was dug to expose the wooden pipe, and a hole was bored through the pipe wall. The pressure was very low in these pipes so water just collected around the pipe where it then was collected up by buckets or through a hose connected to a hand pump. After the fire was out, the hole in the pipe was plugged with a tapered piece of wood. This is where the term fire plug originated, which is still used to this day. These plugs were buried and their locations marked in case they were needed again.



IRON PIPE AND PERMANENT ACCESS POINTS

Cast-iron pipe replaced bored logs used in water main construction in the early part of the nineteenth century. It became impractical to bore random holes in pipes to gain access to water, so, instead, fittings with openings in them, or tees, were installed at regular intervals along the length of the pipe. Wooden plugs were still used to close the openings, but fire fighters no longer had to dig to find them. An iron shield with a removable cover that extended from the tee to the ground's surface provided ready access to the plug.

At first, portable canvas tanks or cisterns were commonly used to collect the water that spewed out when a plug was removed. Soon, however, portable standpipes came into use. After removing the plug, one end of the standpipe was inserted into the tee; a hose connected to the other end of the standpipe carried water to the pump.

Further development of this system in England resulted in a ball hydrant, in which a ball in an iron chamber was attached to the water-main opening (Figure 1-2). Water pressure held the ball against a seat; after the portable standpipe had been attached, a rod could be used to force the ball down and open the valve. Later, this hydrant was modified by replacing the ball with a spring-loaded valve element, which would remain closed even if water pressure was negligible.



DEVELOPMENT OF DRY-BARREL HYDRANTS

The dry-barrel compression hydrant design is the most popular hydrant in North America today. With the early style, a portable standpipe was transported to the fire scene and attached to an accessible main connection below the street surface.

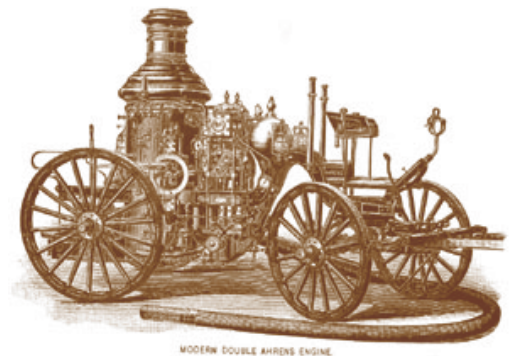
In North America, the use of plug-type hydrants and early modifications of them proved troublesome because of the freezing temperatures to which they were exposed in northern cities. To protect the hydrants from freezing temperatures, but still provide easy access, the mains were buried relatively deeply with a pipe extending to the ground surface. This allowed the valve to remain below the frost line, but still provided an easy hose connection. To eliminate the need to empty water remaining in the standpipe after use, a drain hole was provided in the standpipe just above the valve. The drain hole was usually controlled by a valve that could be closed when the main valve was opened and vice versa.

Two types of dry-barrel hydrants were used during the mid-1800s: flush hydrants, which had the operating mechanism and hose connections in a pit with a cover plate; and post hydrants, which extended above grade. The post hydrant soon came to predominate. There were two reasons for this. The obvious reason is that post hydrants were easier to find and to use. But another reason may well have been more persuasive. In the early days, professional and volunteer fire-fighting brigades competed against each other. (Initially, insurance companies paid professional fire fighters to protect insured properties.) When a fire alarm was sounded, one fireman from each group would race ahead of his company to secure a hydrant for his brigade to the exclusion of its rivals-and it was easier to sit on a post hydrant than to sprawl over the pit of a flush hydrant.

OTHER DEVELOPMENTS

When buckets or hand pumps were used to carry water from a hydrant to a fire, hydrants did not need to be served by high pressure nor did they require very large valve openings. The volume of water available to fight a fire was limited by the capacity of the conveyance rather than the size of the valve opening. Because buckets and hand pumps could carry only limited amounts of water, hydrants with relatively small valve openings were usually more than adequate.

When steam-driven pumps became available, the flows from older hydrants with small valve openings often proved inadequate, so hydrants with larger valve openings came into use. Because of the steam driven pumps that were connected to this point, the term “Steamer Connection” was a common term for this larger connection on the hydrant. Today, the vast majority of hydrants are connected to the main by 6-inch pipe and include one “steamer” or in current terminology “pumper” connection for large-diameter hose and two additional outlets for smaller 2 1/2-inch or 3-inch hoses.



Several designs of tamperproof hydrants have been developed in recent years. These have built-in or attached devices that discourage unauthorized use of the hydrant by requiring the use of special equipment for the removal of outlet caps or for operation of the valve-opening mechanism.

*This fact sheet is based, in part, on AWWA Manual M-17
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