

MOVABLE BRIDGE ✦ HALL OF FAME

William D. Scherzer

Inventor of the Rolling Lift Bridge

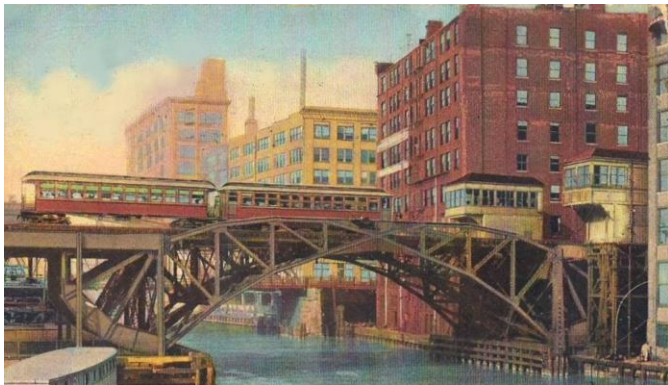
William Donald Scherzer was born on January 27, 1858 in Peru, Illinois, to William F. and Wilhelmina Zimmerman Scherzer. He attended public schools until age 15 and then was tutored by Professor Eggers. At 18 he entered the Polytechnic college in Zurich, Switzerland, and graduated in 1880, tops in his class. His early professional career included three years with Mathiessen & Hegeler Zinc Company; two years with the Pittsburgh, Fort Wayne & Chicago

Railway Company; and eight years in charge of the Chicago office of the Keystone Bridge Company. In 1889 he teamed with George W. Hough to design a rotating dome for the Dearborn astronomical observatory at Northwestern University for which they were granted US Patent No. 416,364. Using their design, domes were constructed for the observatories in Cincinnati and Denver.



DEARBORN OBSERVATORY, NORTHWESTERN UNIVERSITY

While living and working in the city of Chicago in the 1880s, William Scherzer was familiar with the numerous swing bridges spanning the Chicago River and their inherent restrictions to navigation. They also obstructed dock space along the river banks. He concluded that there had to be a better alternative; one that would not require a pier in the navigation channel. His solution was a double-leaf bascule of a new and innovative design whose leaves would rotate upward and in addition, would roll back away from the channel. This combined motion would enable a very efficient structure with a shorter span length than is possible with a trunnion type bascule,



METROPOLITAN ELEVATED R. R. BRIDGE AT VAN BUREN ST., CHICAGO, ILL

such as the Tower Bridge in London. Scherzer applied for a US patent and entered private practice in 1893; patent No. 511,713 was granted posthumous on December 26, 1893, and was assigned to his brother, Albert Scherzer. William contracted with the Metropolitan West Side Elevated Railroad Company for two bridges over the Chicago River. These were two parallel spans for the West Side Elevated Line located between Van Buren Street and Jackson Boulevard and the Van Buren Street Bridge. Before these bridges were completed, William Scherzer passed away July 20, 1893 of typhoid fever at only 35 years of age.

The great efficiency of the rolling lift bridge is gained, not only through its rotation/translation movement, but also by taking advantage of reduced friction. Sliding friction of trunnion bearings is about 15 times greater than rolling friction. Typically, a rolling lift span can be about 10 – 20 percent shorter than a trunnion bascule.

The brilliance of this concept was immediately recognized. Over 150 spans were completed between 1895 and 1915. Of these, 54 were still surviving in 2018. An impressive 64 spans have each provided 100+ years of service. Major spans include the Chicago Terminal Transfer RR over the Chicago River, built in 1899, which had a span of 275 feet; the Pamban Railway Bridge in India, built in 1914, has a span of 289 feet; and Market Street over the Tennessee River, built in 1917, has a span of 310 feet. The latter two bridges were still in service in 2018. At least 34 new spans have been built since 1980, and others are currently being designed.