

engine with a chassis. Their advances took time to cross the Atlantic, and it was not until 1893 that Frank and Charles Duryea built and road-tested the motorized carriage which is recognized as the first American automobile.

The automobile was a remarkable, world-changing breakthrough, and because it was so revolutionary, it created an extraordinary number of opportunities for people with bright ideas. Power transmission, for example, had been pretty straightforward with horse-drawn carriages. The horse pulled, and the wheels turned.

With the internal combustion engine, however, power transmission became a complex engineering problem. Early cars used sprockets and chains to turn the rear axle, but these were unsightly and noisy at high speeds. Worse, they were difficult to lubricate and broke frequently.

At the turn of the century, several French designers experimented with a propeller shaft, and in 1901 the Autocar company built the Type VIII, the first American propeller-shaft-driven car. In each of these designs, though, the propeller shaft was fixed in place with crude joints that seize up, and shattered easily. They offered little or no improvement over sprockets and chains.

Clarence Spicer

Clarence Spicer had been fascinated by mechanics since the day his dairy-farmer father had bought cooling machinery for the farm creamery and told Clarence to look after it. Clarence Spicer's lifelong competitiveness and dedication to quality was also instilled early. One year his father won an award for the highest-quality butter at a World's Fair. The next year he was beaten into second place in another butter competition -- by Clarence.



Clarence Spicer left the Illinois farm to study at Alfred University, then in 1899 entered Cornell's Sibley College to study engineering. There, under the tutelage of Dean Thurston, he worked on his design for an automobile and became increasingly with the issue of power transmission. Dissatisfied with sprockets and chains, Spicer determined to use a propeller shaft, which he attached to the engine and rear axle with specially designed "universal" joints. Spicer's universal joints were a major engineering breakthrough. They were not just easy on the eye and ear -- they were proof against dust and dirt, and were easy to lubricate.

When Spicer showed his drawings to Dean Thurston, Thurston recognized the originality and commercial viability of the universal joint design, and advised his pupil to file for a patent, granted in May 1903. The design was duly published in a patent journal, where it caught the admiring attention of several automobile manufacturers. These people contacted Spicer and asked him to supply the joints, or license their manufacture.

With this firm assurance of the potential of his brainchild, Spicer left Cornell in the Spring of 1900 and went to Plainfield, New Jersey, to begin manufacture of his universal joint. Within two years he had a lengthy list of prestigious clients, including Buick, Wayne, Mack, Olds, Stevens-Duryea, American Motor Car, Diamond T and E.R. Thomas.

The new universal joints were so good that soon they soon became the industry standard for power transmission. Spicer was rightfully proud that his joints were used at both ends of the market. The best and most expensive American cars regularly used his joints, as did the good low-priced cars, demonstrating that Spicer joints were the best money could buy, yet were still competitively priced.

Plainfield, and the Seventh Day Baptists.

As a dedicated Seventh Day Baptist, Clarence Spicer determined to set up his business in an environment where people shared his conviction that Saturday should be a day of rest. Plainfield, New Jersey, was therefore an obvious choice. It was a stronghold of Seventh Day Baptists, and