

# Worth, William Oscar (1861–1940)

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William Oscar Worth was an inventor and engineer who specialized in bicycles and automobiles. One of his business partners was Henry Webster Kellogg. Worth invented the first documented automobile that Ellen White rode in.

## Early Life

Worth was born June 30, 1861, in Illinois, to William J. (1841-1900) and Zarlida A., née Shelton, (1840-1918) Worth.<sup>1</sup> He was the oldest of seven children. Not much is known about his early years. Newspaper accounts record that he began inventing as early as 1884.<sup>2</sup>

## Career

By 1888, Worth along with fellow inventors Calvin and George Swain and his brother John D. Worth had applied for a group patent on a steam engine.<sup>3</sup> This was to be the first of many patents obtained by Worth. In 1889, he received a patent for a steam engine in Cedar Rapids, Iowa.<sup>4</sup> He soon obtained another patent which he shared with his brother, John D. Worth (1863-1947) (patent no. 30,320).<sup>5</sup> While in the Midwest, he designed “a new tandem bicycle” after which he left to travel east with his drawings to find a company to manufacture his new and innovative product.<sup>6</sup> Another early patent was for a bicycle pedal (No. 447,395).<sup>7</sup> His new invention developed into the Chicago Bicycle Company. Tragically the building burned down in May 1891 when someone



Chicago Motor Vehicle Co., Ltd. advertisement.

Source: Adventist Digital Library

lit a match in the finishing room igniting gas from a leaking pipe.<sup>8</sup> The fire was so intense that it destroyed a five-block building in which the Chicago Bicycle Company among several other companies were located.<sup>9</sup> Worth's hands were badly burned, and people wondered whether he might live.<sup>10</sup> Despite the serious explosion that caused financial and physical loss and disfigurement, he did survive.<sup>11</sup>

After this loss, Worth invested his energy into engines and automobiles. In November 1891 he organized the Chicago Electric Carriage Company.<sup>12</sup> He had high hopes for the new company, believing that his new motorized device would "lose many horses their jobs."<sup>13</sup> To promote his new company, he publicly demonstrated how a "surrey [carriage] containing four persons" was propelled by an electric battery.<sup>14</sup>

On October 22, 1892, he was married to Etta L. Spencer (1874-1935) by a Baptist minister in Racine, Wisconsin.<sup>15</sup> It was said that his "bright mind and the genius of the man" made people forget at his wedding the "sad marks" left on his arms from the fire two years earlier.<sup>16</sup> The couple later had one child, Gertrude, born March 13, 1898. With growing affluence, the Worths vacationed in Benton Harbor and St. Joseph, Michigan, where presumably they met new friends who invested in the new company. At the time, these towns were becoming centers of innovation.<sup>17</sup> From 1892 to 1894 Worth experimented with electric carriages that ultimately were unsuccessful. By 1895 Worth turned his attention to the gasoline engine. "The horseless carriage movement has struck Benton Harbor with significant force," noted a newspaper reporter that same year.<sup>18</sup>

Worth teamed up with two Adventist entrepreneurs, William R. Donaldson (1859-1920) and Henry Webster Kellogg (1840-1918) to create the Benton Harbor Motor Carriage Company. Worth remained the primary inventive genius behind the company with patents typically assigned to all three men. By 1897 he submitted a patent for a new gas engine.<sup>19</sup> By 1898 these three men formally incorporated the Chicago Motor Vehicle Company in Harvey, Illinois, with reportedly a capital stock of at least \$1,000,000 to manufacture motors and vehicles.<sup>20</sup> The new technology featured a "hydro-carbon gas engine."<sup>21</sup> Worth served as the chairman of the Board of Trustees, Donaldson as the secretary, and Kellogg as treasurer. The next year the company built a factory at Harvey, Illinois. The majority of stockholders were Chicago capitalists.<sup>22</sup> On June 9, 1899, Worth with H. W. Kellogg and Donaldson filed a patent for a "Hydraulic Motor or Pump and Reversing Valve" that became foundational to a series of new automobiles (approved January 7, 1902 as patent No. 690,813).<sup>23</sup> They also patented an "Igniter for Explosive Engines" (No. 699,014, patented April 29, 1902).<sup>24</sup> In addition to their patents for parts to a automobile, they patented their own new motor vehicle (No. 607,318 patented July 12, 1898<sup>25</sup>) and (No. 668,074, patented February 12, 1901<sup>26</sup>). Previous attempts at "horseless carriages" were merely a motor attached to a horse-drawn wagon or cart. Worth and his team were notable because all of the materials were both original and designed specifically from the ground up as a truly original automobile chassis and body. He was certainly among the earliest Americans to develop a gasoline powered engine, although that distinction belongs to the European, Carl Benz (1844-1929).<sup>27</sup> By October 25, 1900, the company was reincorporated again under the laws of Illinois in Springfield as the company shifted manufacturing away from Michigan to its new Illinois plant.<sup>28</sup>

The Worths were personal friends of the White family. W. C. White wrote a letter to Worth apologizing for not returning a borrowed hat. Furthermore, he consulted him on machinery needed for boats and printing in Australia and across the South Pacific. He then wryly added: "I wonder how you feel wearing a preacher's hat; I have hoped that the wearing of an inventor's hat would give me some new ideas but it does not seem to work."<sup>29</sup>

Ellen White's first ride in an automobile, one of at least 13 such documented rides, occurred on January 13, 1902, in Chicago, during a ride to inspect J. H. Kellogg's branch sanitarium. She appreciated how Worth's vehicle had running seats along each side. Ellen White, who was wheelchair bound at the time, expressed "great relief" about being "able to lie down" for the journey.<sup>30</sup> Worth also made newspaper headlines that same year when, during a test of their "motor freight truck," he showed how his vehicle could pull a load of three tons without losing any speed.<sup>31</sup> It was furthermore reported that the load could be transported "with ease" and at "double the speed of the horse."<sup>32</sup>

The Chicago Motor Vehicle Company fizzled out in 1903-1904 ultimately filing for bankruptcy.<sup>33</sup> Worth tried one more time to develop a special kind of vehicle known as the Worth high-wheeler (1907-1910), but this vehicle did not sell well. Henry Ford (1863-1947) and other manufacturers developed more efficient ways to assemble and sell automobiles. Entrepreneurs such as Worth either sold out their interests or were forced to go out of business. In 1912 Worth joined his brother John, with Hiram Beshore and E. H. Wolcott, in starting the Railway Motor Car Company in Indianapolis, Indiana, where he at last made a small fortune manufacturing railroad cars and equipment.<sup>34</sup>

## Final Years

In later years, the Worths had sufficient financial resources that Etta focused her attention on philanthropic work. For a time, she served as president of the Protestant Children's National Association.<sup>35</sup> They retired to California in the 1920s. Etta died at age 62 in Long Beach, California. Adventist Percy T. Magan officiated the funeral.<sup>36</sup> Tragically, William died at the age of 79 from being struck by an automobile.<sup>37</sup>

## List of U.S. Patents<sup>38</sup>

Assignee from Donaldson

1. LP 607318 – William O. Worth – Motor Vehicle (1898)
2. DP 32199 – William O. Worth – Frame for Motor Vehicles (1900)
3. LP 659427 – William O. Worth – Frictional Driving Wheel (1900)
4. LP 665497 – William O. Worth – Motor Vehicle (1901)

5. LP 668073 – William O. Worth – Motor Vehicle (1901)
6. LP 668074 – William O. Worth – Motor Vehicle (1901)
7. LP 668075 – William O. Worth – Piston for Explosive Engines (1901)
8. LP 670550 – William O. Worth – Duplex Gas Engine (1901)
9. LP 673809 – William O. Worth – Gas Engine (1901)
10. LP 681287 – William O. Worth – Speed Regulator for Explosive Engines (1901)
11. LP 681288 – William O. Worth – Automatic Lubricator (1901)
12. LP 690813 – William O. Worth – Hydraulic Motor or Pump and Reversing Valve Therefor (1902)
13. LP 699014 – John V. Rice, Jr. – Igniter for Explosive Engines (1902)
14. LP 716610 – William O. Worth – Motor Vehicle (1902)
15. LP 724767 – William O. Worth – Motor Vehicle Controlling Device (1903)
16. LP 731007 – William O. Worth – Power Translating Device (1903)
17. LP 734490 – William O. Worth – Universal Joint or Shaft Coupling (1903)
18. LP 874520 – George W. Marble – Change Speed and Reversing Mechanism (1907)
19. LP 880024 – John D. Hay – Explosive Engine (1908)
20. LP 894568 – Frederick C. Avery – Gas Engine (1908)
21. LP 942140 – John D. Hay – Explosive Engine (1909)
22. LP 962445 – George W. Marble – Filler or Junk Plate for the Crank Cases of Explosive Engines (1910)

#### Original Patents

1. CA 30320 – Steam Engine (1888) – Joint Patent<sup>39</sup>
2. LP 399593 – Steam Engine (1889) – Joint Patent
3. LP 412444 – Steam Engine (1889)

4. LP 434575 – Governor for Steam Engines (1890)
5. LP 444868 – Bicycle (1891)
6. LP 447395 – Bicycle Pedal (1891)
7. LP 581683 – Gas Engine (1897)
8. LP 581951 – Traction Engine (1897)
9. LP 607613 – Hydrocarbon Gas Engine (1898)
10. LP 607318 – Motor Vehicle (1898)<sup>40</sup>
11. DP 31867 – Frame for Motor Vehicles (1899)
12. DP 31982 – Frame for Motor Vehicles (1899)
13. DP 32199 – Frame for Motor Vehicles (1900)
14. LP 645378 – Motor Vehicle (1900)
15. LP 659427 – Frictional Driving Wheel (1900)
16. LP 665496 – Carbureter (1901)
17. LP 665497 – Motor Vehicle (1901)
18. LP 668073 – Motor Vehicle (1901)<sup>41</sup>
19. LP 668074 – Motor Vehicle (1901)
20. LP 668075 – Piston for Explosive Engines (1901)
21. LP 668076 – Detachable Thread Shoe for Vehicle Wheels (1901) – Joint Patent
22. LP 670550 – Duplex Gas Engine (1901)
23. LP 673809 – Gas Engine (1901)
24. LP 681287 – Speed Regulator for Explosive Engines (1901)
25. LP 681288 – Automatic Lubricator (1901)

26. LP 684895 – Vehicle Wheel (1901) – Joint Patent
27. LP 690813 – Hydraulic Motor or Pump and Reversing Valve Therefor (1902)
28. LP 692962 – Cooling or Condensing Coil (1902) – Joint Patent
29. LP 710728 – Valve and Valve Mechanism for Gas Engines (1902)
30. LP 716610 – Motor Vehicle (1902)
31. LP 724767 – Motor Vehicle Controlling Device (1903)
32. LP 728430 – Heating System for Motor Vehicles (1903) – Joint Patent<sup>42</sup>
33. LP 731007 – Power Translating Device (1903)<sup>43</sup>
34. LP 734490 – Universal Joint or Shaft Coupling (1903)
35. LP 735930 – Engine Governor (1903)
36. LP 740069 – Vehicle Tire (1903)
37. GB 190306522 – Improvements in Vehicle Tires (1903)
38. GB 190226597 – Improvements in Vehicle Tires (1903)
39. LP 757379 – Frictional Power Transmitting Device (1904) – Joint Patent<sup>44</sup>
40. LP 757380 – Power Installation for Self Propelled Vehicles (1904) – Joint Patent
41. LP 769243 – Vehicle Tire and Fastener Therefor (1904)
42. LP 882513 – Power Transmitting Mechanism (1908)
43. LP 897694 – Spring Suspension (1908)
44. LP 907669 – Explosive Engine (1908)
45. LP 906844 – Multiple Friction Transmission Gear (1908) – Joint Patent

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## NOTES

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12. "New Incorporations," *Chicago Tribune*, November 6, 1891, 10.
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19. "Patents," *The Evening Republican*, May 10, 1897, 2.
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42. Cf. GB 190311411 – Improvements in Heat Radiating Systems for Motor Vehicles, also applicable to Buildings (1903); FR 332210 – Système de Chauffage pour Automobiles (1903).
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