

Early and Late Tricycles and Quadricycles in Bohemia

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I would like to describe some noteworthy machines constructed by important Czech technicians. While they worked in areas other than velocipedes, their designs should be mentioned.

The first is Josef Božek (28 February 1782 – 21 October 1835). [Figure 1] His father owned a small mill. He studied mathematics and technology in Brno and then set out for Prague. In Prague, he entered the Czech technical university, which was established in 1805. He worked there as a mechanic and constructed various machines and pieces of equipment. His steam-driven automobile was one of the first in Europe,

and he presented it to the public on 17 September 1815 in the Stromovka park in Prague. It was a sensation, and Božek was widely acclaimed. It is interesting to note that he had constructed this vehicle at his own expense with no financial rewards. Another of his inventions was a 13 metre long paddle-wheel steamer, which he built two years later, in 1817. It was driven by the steam engine of his automobile. Once again, he organised a public presentation and a large number of spectators came to view it. Božek hoped to use the entrance fee to pay for all the expenses that he had incurred in his experiments. However, the beautiful weather suddenly changed for the worse, with a downpour, during which the spectators all disappeared, along with one of his cash boxes. In his unhappiness and desperation, Josef Božek broke up his steam boat. Thus, we no longer



Figure 1. Josef Božek, 1782–1835 Reproduction from the book of Jiří Streit: Božkové, Prague, 1946.

know exactly what the automobile or boat looked like. Several days later, an anonymous letter arrived for Božek, containing 300 gold crowns for the "unfortunate artist". It wasn't until years later that Božek learned that the gift had come

from the free masons. It should be pointed out that free masons were prohibited in Austria-Hungary at that time.

Božek was also interested in railways, which were a new and rapidly developing field. He constructed a mechanical vehicle for four passengers for the rail line between České Budějovice and Linz in Austria – the railway draisine. [Figure 2] It was

driven by a fifth man who pedalled on two pedals at the back of the vehicle. They were connected to the rear axle, which the pedalling set in motion. The

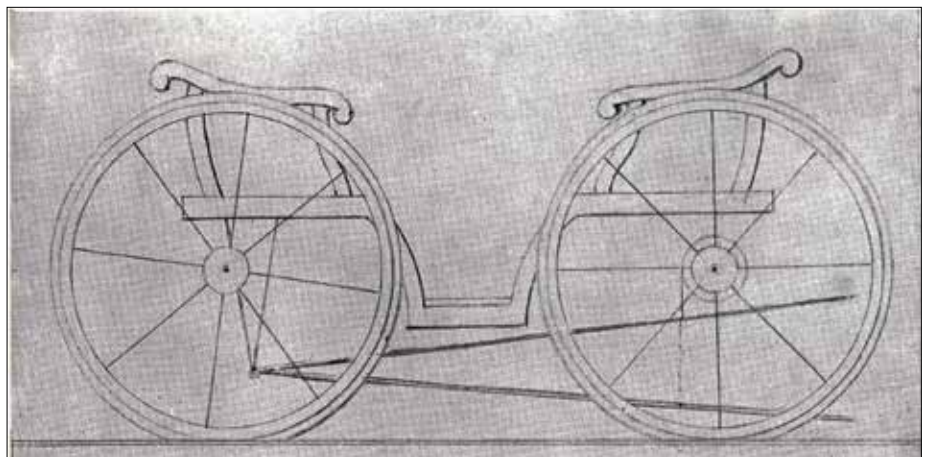


Figure 2. Sketch of the railway draisine of Josef Božek Reproduction from the book of Jiří Streit: Božkové, Prague, 1946.



Figure 3. Romuald Božek, 1814–1899 Reproduction from the book of Jiří Streit: Božkové, Prague, 1946.

principle that was the basis of functioning of the mechanism cannot be determined from the preserved sketch.

Josef Božek got married in 1809 and had five sons. The first-born, František, and the fourth, Romuald (7 February 1814 – 30 April 1899), survived to adulthood. [Figure 3] Romuald was a very talented technician and mechanic, who worked on electric lighting and water-supply systems, including designs for waterworks and public water mains. We are interested in his "light road vehicle", as Romuald described it in his memoirs. It was a tricycle, which Romuald constructed in 1832. The problem is that he didn't write about the tricycle until he wrote his memoirs in 1886, i.e. more than fifty years later. In addition, Romuald was only 18 years old in the relevant year of 1832. Thus, we have to take



Figure 4. Tricycle of Romuald Božek, reportedly from 1832. Picture from 1867. Archive of the National Technical Museum.

the mentioned year of the origin of the tricycle with a certain reserve. Nonetheless, a year earlier (1831), Romuald had begun to work with his father Josef on the construction of a tower clock for the city of Hradec Králové. In 1835, when his father Josef died, Romuald took over his company for building large machines. He was only 21 years old at that time, and nevertheless, he passed the test. He was certainly a very capable and skilled technician.

Romuald stated that the tricycle weighed 75 Austrian pounds (i.e., 42 kg), and had wheels with a diameter of 6 Austrian feet (i.e., 190 cm. or 75 inches). The tricycle was set in motion by pull rods, on which the rider pedalled. The pull rods were connected with the crankshaft of the back wheels. Apparently, the machine was easily set in motion; Romuald wrote that his tricycle won a race with a man riding a horse. There was even a brake system on the tricycle, but we have no

information about how it worked.

The tricycle was stuck in an attic for years until the Prague theatre director Rudolf Wirsing ordered it from Romuald Božek in 1867 for the play "Flik a Flok". The premiere was held on 26 March 1867 and the tricycle received a great round of applause. In the same year, Romuald Božek arranged to have the machine immortalised in a photographic atelier. [Figure 4] He is shown sitting on the seat together with his wife, who was 22 years younger than he was. It is obvious that the wheels were large: they were claimed to be 190 cm. in diameter. Romuald Božek and his wife are holding the ends of long rods connected to arms on the front wheel steering column: This was the rather crude mechanism for steering the vehicle. This is thus a very primitive system.

Although it cannot be confirmed that 1832 was the year that this machine was made, it is certainly a very early machine that was made before 1867 when the photograph shown in Figure 4 was taken.

Sylvestr Krnka (29 December 1825 – 4 January 1903) [Figure 5] also made tricycles and quadricycles. He was the son of a cartwright from Southern Bohemia, and learned the gunsmith trade in Vienna. This talented technician obtained



Figure 5. Sylvestr Krnka, 1825–1903. Picture from https://cs.wikipedia.org/wiki/Sylvestr_Krnka#/media/File:Sylvestr_Krnka_Vilimek.jpg

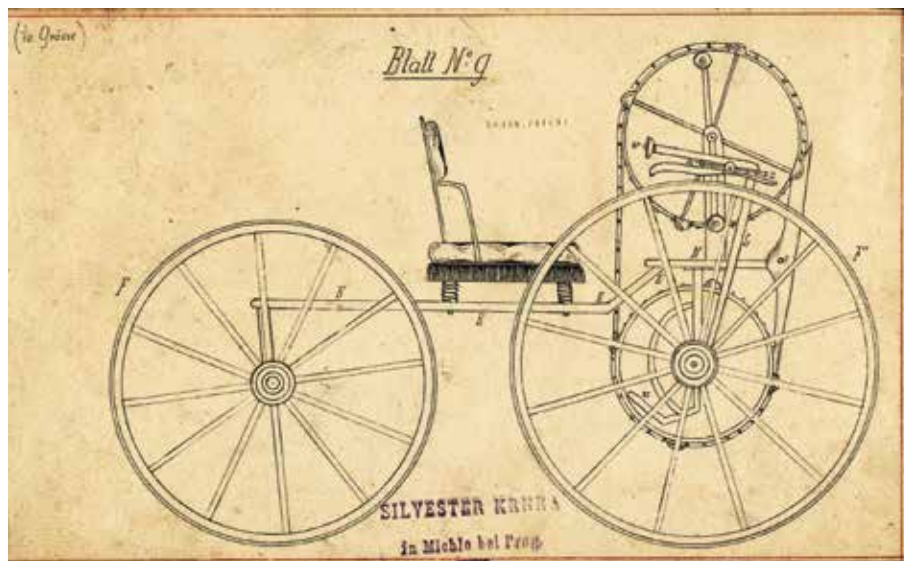


Figure 6. Drawing of a tricycle for a patent application, 1883 Military Historical Institute.



Figure 7. Final appearance of Krnka's tricycle, 1884. Military Historical Institute.



Figure 9. Krnka made several of his machines and demonstrated them at the General Land Centennial Exhibition in Prague in 1891. Military Historical Institute.

a number of patents, and he was active not only in Bohemia, but also in Austria and Russia. His guns became part of the armaments of the Imperial Russia, Montenegro, Bulgarian, and Romanian armies.

He applied for a patent for his first tricycle on 19 April 1883 [Figure 6], and a patent was granted on 21 January 1884 under the number 34/154 (1884/3682). The law of 1852 stipulated that a patent could be granted only if one specimen of the subject of the patent were completed within a year of application. Sylvestř Krnka apparently fulfilled this condition. The permission of the Prague directorate of police was required for him to at least

test the tricycle. He submitted the request on 28 July 1884 and received a permit for a period of four weeks with the condition that the vehicle be fitted with a bell.

[Figure 7]

Sylvestř Krnka proposed several designs for driving the vehicle, using either the feet or the hands, and there was even a design using the feet and hands simultaneously or even four-wheel drive. [Figure 8] In 1891, he exhibited several designs at the General Land Centennial Exhibition in Prague in 1891. [Figure 9] Later he was interested in constructing a tramway with hydraulic drive, but occasionally constructed tricycles and quadri-

cles to order. No record has been found of how many he made. I would think that there were only a few of them. Although the craftsmanship was undoubtedly good, they had limited practical use.

There is one more tricycle about which the only information that I have is a photograph. [Figure 10] A colleague of mine bought this picture in a Prague second-hand book shop. No more information is apparent other than that the machine was set in motion by the hands, which turned a crankshaft on the front wheels. It is not obvious whether the front wheel or small back wheel was turned. I couldn't discover either the year of manufacture or who made the tricycle and where this took place. However, it is a primitive and obviously old machine.

These were undoubtedly interesting designs, but they did little to influence developments in the field. However, I think that it is worth paying at least some attention to those who showed us the way not to proceed. ●

Acknowledgements

I would like to thank Jan Bejšovec, Tomáš Kučera and Jan Skramoušský for their assistance.

Sources:

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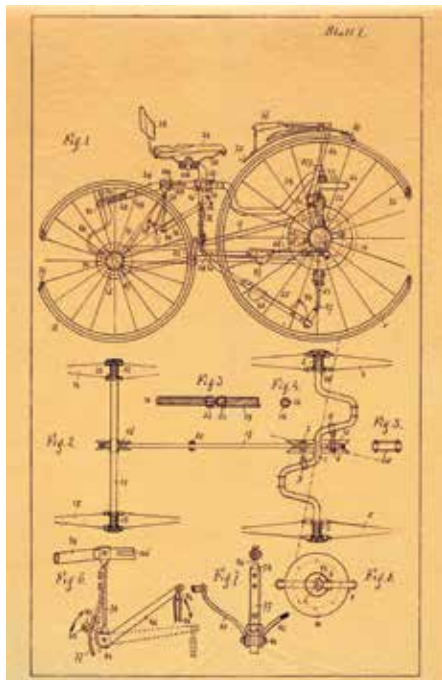


Figure 8. Drawing of a quadricycle with 4x4 drive (1), powered by the feet. Military Historical Institute

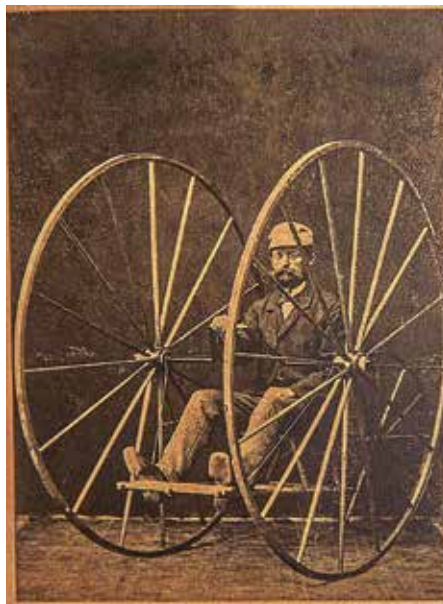


Figure 10. Tricycle of an unknown manufacturer and uncertain year. The rider powered the machine with his hands and steered it by controlling the rear wheel. Archive of Jan Bejšovec.