

# Eduard Penkala

Born 1871. Inventor of the hot water bottle.  
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# 1. Penkala's Hot Water Bottle



*Hot water bottle invented by Eduard Penkala.*

The following chapter was archived in 2024, with acknowledgement and thanks, from the [www.croatianhistory.net](http://www.croatianhistory.net) website.

**Eduard (Slavoljub) Penkala** (1871-1922), born in Slovakia to a Polish/Dutch family, became naturalized Croat when after his marriage his family immigrated to Zagreb.

He invented the modern hot water bottle (shown above). It was a resin bottle filled with hot water, called *Termofor*, used in bed as "central heating" during cold nights.

He went on to invent the fountain pen and the propelling pencil. He was also a pioneer constructor of bi-plane aircraft – only seven years after the first flight by the Wright Brothers.



He was also one of the first constructors of planes (Zagreb, 1910), only seven years after brothers Wright.



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*By far the biggest attraction of the 2010 Lučko Airshow: a modern replica of the first Croatian aircraft, the Penkala P-3. Designed by famed inventor Slavoljub Penkala, the P-3 had attempted to take off in 1910, but never made it beyond a few hops due to some design flaws. Intending to right that, the CA-10 was conceived as "modernized" P-3*

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## 2. Hot Water Bottle History

*The following chapter was archived in 2024, with acknowledgement and thanks, from the Love Hot Water Bottles website at [www.lovehotwaterbottles.com](http://www.lovehotwaterbottles.com).*

### **When did it all begin?**

The earliest recorded type of hot water bottle was the bed warmer. Going back to the 16th century these were filled with embers from the fire and placed into a metal pan with a lid over the top to protect against sparks leaping out and setting the bedding on fire. Many still survive today and can be seen in copper form with long wooden handles that helped move the hot pan across the bed to warm all corners. These early bed warmers made it easy to take hot charcoal or embers direct from the fire to heat up the metal pan. Some had perforated air vents to let out more heat and most were decorated with motifs, family crest or motto's. Very popular at the time and mass manufactured so many still survive today, if in good condition can still be used today. Often found in antique shops and fairs and when cleaned up these old bed warmers make great decorator pieces.



### **Example of Bed Warmer Pan**

Earthenware potteries produced large stoneware bed warmers also called a foot warmers as a new alternative way to keep warm. The stoneware example below was made by Langley Ware of England. Often the stone cap would be replaced with a cork alternative to seal the water, this example below has its original stone cap and in excellent condition. Because they were mass produced around the country by local potters and being very robust many survived so the antique value is not great. Many of the stoneware examples are still in use today and will be for years to come!



### **Example of Stoneware Foot Warmer**

Hot water was also regularly used in glass or ceramic pots using cork seals to keep watertight. To avoid knocking and intense heat these would be wrapped in a towel or blanket and placed carefully in position. Few glass types survive today but ceramic containers continued in production for many years well into the 20th century. Other examples are [boots hot water bottle](#) made in copper, brass or tin provided a novelty value to a household utility item of the day.

### **When did it change?**

The modern day one we all use and love has the motor industry to thank! Charles Goodyear started the ball rolling with the invention of vulcanised rubber. This led to many new uses for rubber, one of which was the [hot water bottle](#), rubber is an ideal medium to contain hot water and transfer heat directly to source.

### **Who was first with a rubber hot water bottle?**

In 1903 Slavoljub Eduard Penkala (April 20, 1871 – February 5, 1922) a naturalised Croatian engineer first patented the "Termofor" a rubber hot water bottle. Born to a Polish father and Dutch mother he was a serial inventor with many great inventions to his name. From that first 1903 patent they quickly spread around the globe and became a common household item. Now over a 100 years later improved production techniques means they have evolved to meet the demands of a younger generation across the world.

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### 3. Fountain Pens, Propelling Pencils, Aeroplanes and a Rotating Toothbrush



*Image by Medias Politika. This chapter was archived in 2024, with acknowledgement and thanks, from the Expat in Croatia website at [www.expatincroatia.com](http://www.expatincroatia.com).*

Penkala was a prolific inventor, with a background in medicine and chemistry.

According to his parents' wishes, he moved to Vienna to study medicine but eventually changed course as he felt he made the wrong choice. Penkala moved to Dresden where he graduated with a degree in Chemical Engineering from the Dresden University of Technology. During his studies there, he attended violin lessons where he met his future wife, pianist Emilia Stoffregen.

Finally, he moved to Croatia's capital, Zagreb, with his family. He had four children who were his inspiration for new inventions. In the center of Zagreb, he opened a workshop where he did his inventing. He was later appointed Royal Technical Controller.

#### **The invention of a pen**

Penkala loved Zagreb. To show loyalty to his new homeland, he decided to change his name to Slavoljub, which is why we all know him as Slavoljub Eduard Penkala. Croatians showed him loyalty in return, because almost one hundred years after he died, we still call a pen *penkala* in Croatian.

Penkala invented the automatic mechanical pen in 1906. This was by far his biggest and best-known invention. Back then, it was called an “automatic pencil” and soon after it was invented, the pen was patented in over 70 countries around the world.

He collaborated with entrepreneur Edmund Moster, who started the Penkala-Moster Company which would soon become one of the biggest pen and pencil companies in the world. This company still exists today and is called *Toz Penkala*.

### **Wings to fly**



Image by **Genius Croatia**

Slavoljub Penkala showed interest in natural and technical sciences from an early age. He spent his time in nature surrounded by butterflies and birds. He would spend hours outdoors with his son, Eduard, watching and chasing the butterflies, as he was obsessed with flying.

Penkala was amazed by the first flights of the Wright brothers and had a big interest in aviation. The **butterfly *Neptis lucilla*** inspired him to build a plane.

Penkala constructed the first Croatian two-seat airplane. All the money he made by inventing the pen was invested in the construction of this plane.

The aircraft was completed in 1910 and was flown by the first Croatian pilot, Dragutin Novak. The airplane was named after his favorite butterfly and his inspiration, *Neptis lucilla*.

## Penkala's other inventions

Having such a creative spirit, Penkala invented more than 80 inventions and innovations we use every day.

One such invention was inspired by his daughter who didn't like to brush her teeth. He watched her struggling for a while, thinking about how could he make tooth brushing easier for her. He was then inspired to invent a rotating toothbrush.

His patented inventions also include a hot water bottle called *termofor*, laundry detergent, an anode battery, and a remedy against rheumatism. As he traveled a lot, he would often stay in hotels and was surrounded by the nature, so he invented pesticides too.

## Penkala's tragic end

During the First World War, he ended his research and focused more on patenting his innovations. However, everything stopped for him in 1919 when he got malaria. Nobody knew where the mosquito bit him.

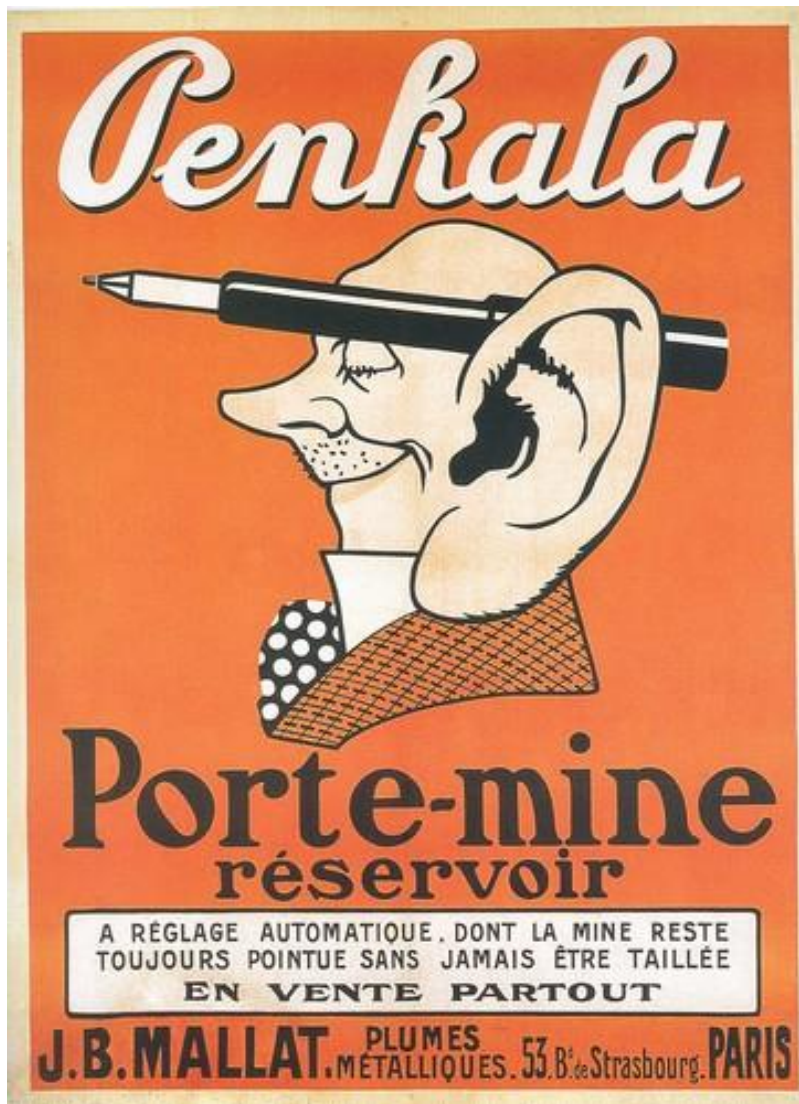
He fought for his life and his family thought he would not survive. After ten days of high temperature and fever, he managed to recover.



*Image by Lice Grada HR*

Unfortunately, his health didn't last long. One of his travels was fatal for him. He died in 1922 at the age of 51, after catching pneumonia on a business trip. His resting place is in Zagreb's famous cemetery, Mirogoj.





*Contemporary advertisement for Penkala's fountain pen.*

Penkala invented a new plastic mass substance called **ebonite**, and used it for production of gramophone records. He then signed a contract with the Edison-Bell company, England, and a new company **Edison-Bell-Penkala Ltd.** was founded in Zagreb which started the production of gramophone records based on his original technology.





*The Penkala factory in Zagreb in 1912, Branimirova street, had about 300 employees, with canteen, kindergaten, swimming pool, and even a football club Penkala. It was among largest factories for office equipment in the world.*

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