



UNION OF
CROATIAN
INNOVATORS



ELECTRONIC
INVENTION INFO
7TH INTERNATIONAL
INVENTORS DAY - IID
VIRTUAL CELEBRATION
2014 JUNE 13
HUNGARY

In Gemäßheit des a. h. Patentes vom 15. August 1852 (u. G. pl. nr. 184) ist

dem *Ludwig Kovacevic, Künig- und
Königs- und Kaiserlich-Privat-Drucker in Agram*

am heutigen Tage ein ausschließendes Privilegium für die Dauer *von zwei* Jahre
in den im Reichsrathe vertretenen Königreichen und Ländern auf

*Offenheit-Messern mit Messergriffen zur flüssigen
Befestigung von Eisen-Griffen von flüssiger oder
festen Messing, ferner von Eisen-Griffen, ja
auch von Eisen-Griffen, auf einem Querschnitt*

nach Maßgabe der im k. k. Handels-Ministerium erliegenden Beschreibung unter allen Bedingungen
und mit allen Wirkungen, welche in dem a. h. Patente vom 15. August 1852 angegeben sind,
ertheilt worden.

Hierüber ist gegenwärtige Urkunde bei dem k. k. Ministerium des Handels ausgefertigt und
mit Beidrückung des Ministerial-Siegels vollzogen worden.

Wien, am *12. Februar 1876*

*Für den k. k. Handelsminister
Der Stellvertreter*

Charvat

Vorstehendes Privilegium wurde im Privilegien-Register sub Com. *262* Fol. *602*
vorschriftsmäßig eingetragen.

Vom k. k. Privilegien-Archive.

Wien, am *12. Februar 1876*

Tisch

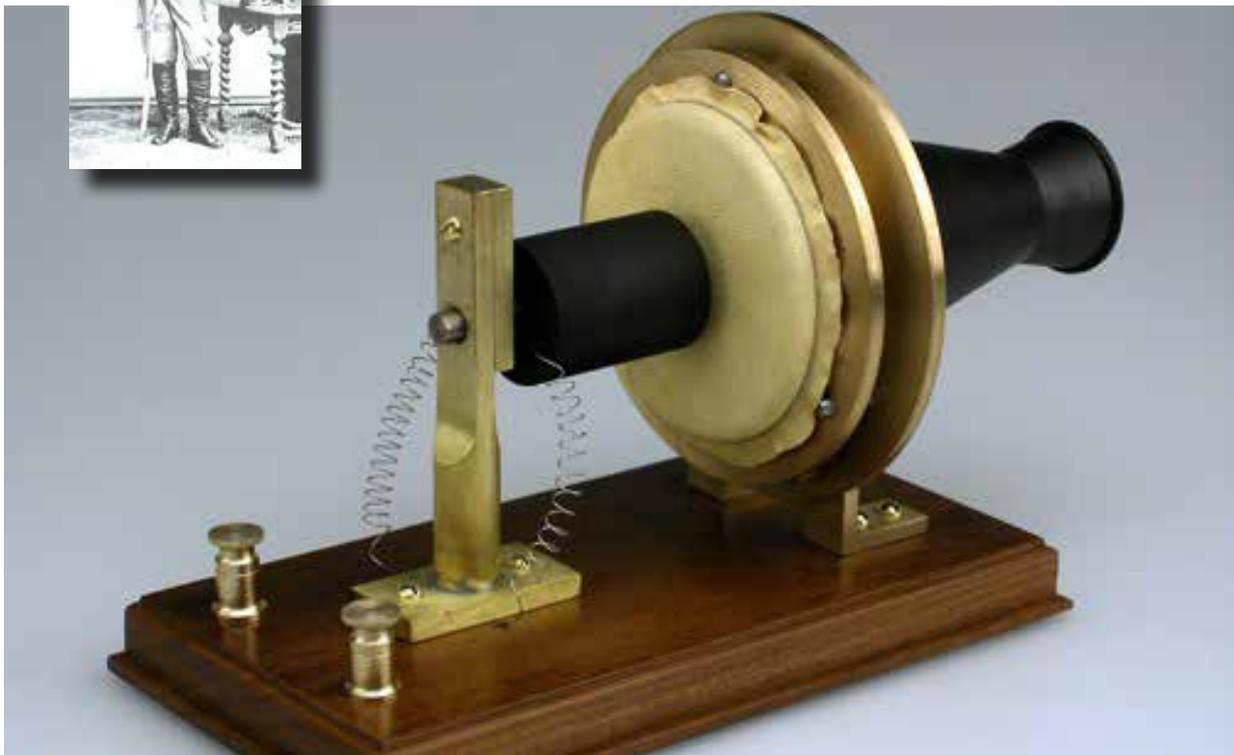
First ever patented invention in Croatia

TITLE: *DUPLEX CONNECTION OF TELEGRAPHIC TRANSMISSION*

PATENT INFO: Patented in Vienna and Budapest, 1876 February 12th

INVENTORS: Ferdinand Kovačević (1838 – 1913)

DESCRIPTION: One of the pioneers of telegraphy is Ferdinand Kovacevic (1838-1913). He invented the possibility of telegraphic connection along a single wire (the duplex connection), whereas before four wires had been used. By the way, Zagreb had its telegraph lines only six years after the first telegraph lines in the world introduced by Morse (Washington-Baltimore, 1844). Telegraph connection with the Croatian region of Lika, where Kovacevic was born, had been established already in 1854. Kovacevic published several electrotechnical books in Zagreb in German language.



Top three Croatians inventions patented in the 20th Century

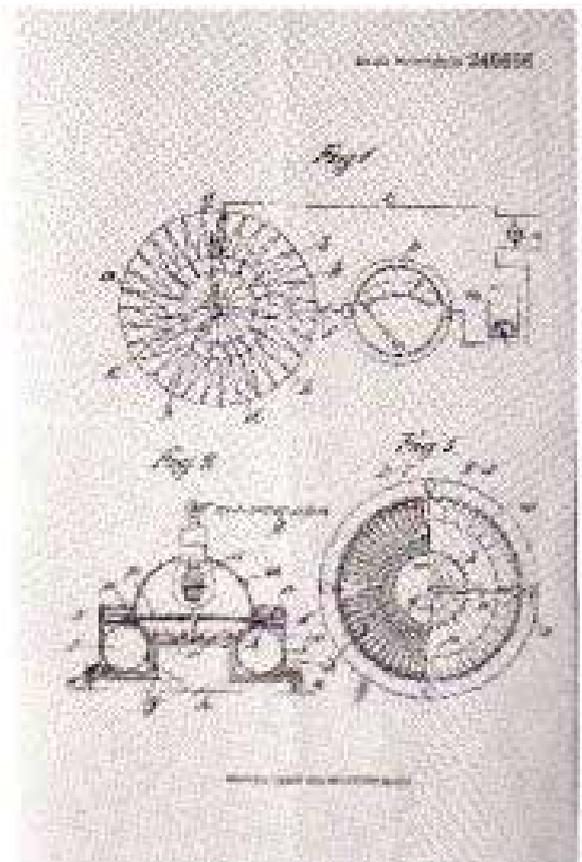
1

TITLE: *GYROCOMPASS*

PATENT INFO: Patented in Berlin, 1910

INVENTORS: Marcel Kiepach, Esq. (1894 – 1915)

DESCRIPTION: His first invention, a gyrocompass Kiepach, Esq. invented and patented 1910 in Berlin. It is a device for the concurrent pointing of a position of the compass on various spots of the ship. He patented the same invention in London in 1911.



2

TITLE: MECHANICAL PENCIL

PATENT INFO: Patented in Budapest 1906 January 24th

INVENTORS: Slavoljub Eduard Penkala (1871 – 1922)

DESCRIPTION: He became renowned for further development of the mechanical pencil (1906) then called an “automatic pencil” and the first solid-ink fountain pen (1907). Collaborating with an

entrepreneur by the name of Edmund Moster, he started the

Penkala-Moster Company and built a pen-and-pencil factory

that was one of the biggest in the world at the time. This company, now called TOZ Penkala, still exists today. He

constructed and invented many other products and devices, and held a total of 80 patents.



TITLE: AZITHROMYCIN (SUMAMED, ZITHROMAX)

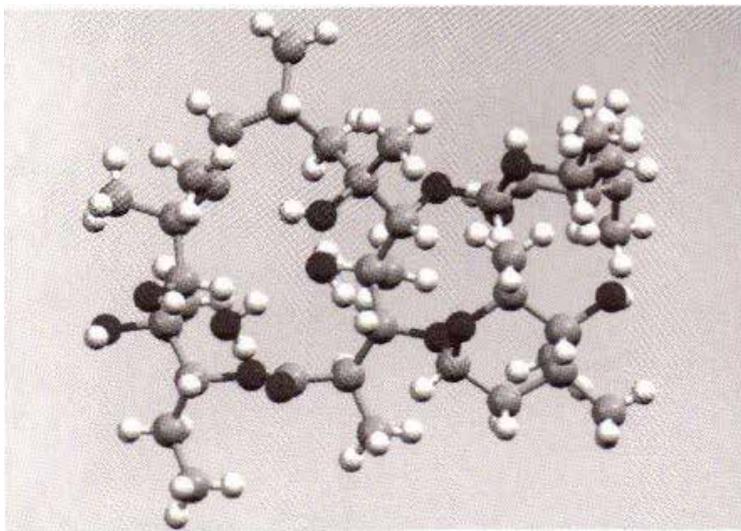
PATENT INFO: Zagreb 1981

INVENTORS: Slobodan Đokić, Zrinka Tamburašev, Gabrijela Kobrehel and Gorjana Lazarevski

DESCRIPTION: Macrolide antibiotics are a group of compounds having a common characteristic of a ring composed of 12-16 atoms. The most important representative, erythromycin, is present in the clinical application for more than half of a century. Its structure is composed of 14-member ring to which two sugars are attached: cladinose and desosamine.

Erythromycin belongs to a group of antibiotics with medium broad spectrum of activity and is used in treating bacterial infections of upper respiratory tracts and of soft tissue. Although effective and safe, its instability in gastric acid medium, where it is rapidly decomposing to the biologically inactive dissolving products, presents its great disadvantage. For numerous researchers an impetus was to improve the characteristics of erythromycin by chemical transformation of its molecular formula.

The new antibiotic features have a broader antibacterial spectrum, a low toxicity and very good tolerance. Therapeutic dose of azithromycin is ten times lower than erythromycin dose and the time of therapy is 2-3 times shorter.



Top three Croatians inventions patented in the 21th Century

1

TITLE: SYSTEM AND PROCESS FOR MAINTAINING OF WORKING TEMPERATURE OF BATTERY CELLS FOR STARTER ACCUMULATORS IN VEHICLES

PATENT INFO: Zagreb 2011

INVENTORS: Mate Rimac

DESCRIPTION: In order to avoid the low temperature problems encountered by similar systems, we have introduced the heating of battery cells to ensure unhindered work throughout the year and in all conditions.



Cell heating can be achieved in two ways, depending on the kind of application:

1. Each cell is in a direct contact with the heater (foil) which gets activated if required
2. The heater is shared by the whole battery pack

The temperature sensor is mounted directly on one of the cells and measures its temperature. As the battery cell largely consists of metal (aluminium and copper), temperature is evenly distributed over the whole cell.

Mate Rimac also constructed the fastest electric car in the world - CONCEPT ONE.



2

TITLE: *TELEMETRIC HYDRANT FOR EARLY WATER LOSSES DETECTION*

PATENT INFO: Zagreb 2012

INVENTORS: Igor Ignac and Boro Markić

DESCRIPTION: The telemetric hydrant is a unique unit that is composed of the following elements: working water supply hydrant housing, measuring device (sensor), logical control device (PLC), communication device, power storage (battery) and photovoltaic cells as a source of electric power and battery charging and discharging controller. Apart from its function to take water, the telemetric hydrant is also an energy-independent device for detection of measured quantities, such as pressure, temperature, water quality, detection of opening, etc., to the center for controlling and monitoring the water supply system (dispatch center). The power supply of the telemetric hydrant device is realized by batteries which are charged by photovoltaic cells. This technical solution can be applied to overground and underground hydrants. By applying this solution, measuring points can be placed on the pipelines in a simple and inexpensive way, as well as collecting numerous data about the state of the water supply network all in function of early detection of water losses and controlling the water quality.



3

TITLE: VHS ASSAULT RIFLE

PATENT INFO: Zagreb 2008

INVENTORS: Marko Vuković

DESCRIPTION: VHS assault rifle has been designed for a fast mounting of all kinds of sights and, besides the use of small arms ammunition, it can be easily prepared for throwing mines and bombs and, at the same time, it can have a bayonet mounted on it. In this rifle, the cocking lever is placed on the upper side of the rifle and automatically closes in the forward position and stays still while the bolt moves forward backward. The problem of self-cleaning of the bolt chamber has been solved in such a way that, when the bolt gets into the chamber, it turns and, while turning, it pushes all the impurities out through the elongated opening for the cartridge case ejection. The fire selector is placed within the reach of the index finger used for firing and, without letting the grip go, it is possible to put the rifle on safety with the index finger, switch it to the automatic or single fire position and lower the bolt after changing a frame or a drum. The rifle is equipped with various adapters which can be mounted very quickly with a lock system thus enabling the use of any type of a magazine. The cooling of the recoil spring, protected from external influences in the guide, is achieved in such a way that the recoil spring retroactively seals air which, with the moving of the bolt acts like an air pump thus cooling the spring, the guide tube and other parts of the rifle. The rifle has been designed with the grip placed in front of the magazine and, because of this, it is approximately 300mm shorter with the same barrel length than other rifles of the same class. Such a design makes the rifle 0.8 to 1 kg lighter than other rifles of the same class.



