



The Line Shaft

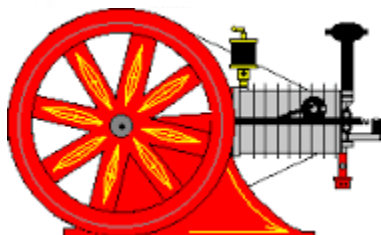
The Official Newsletter of the

NORTH JERSEY ANTIQUE ENGINE & MACHINE CLUB

May2020



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973/903-3583

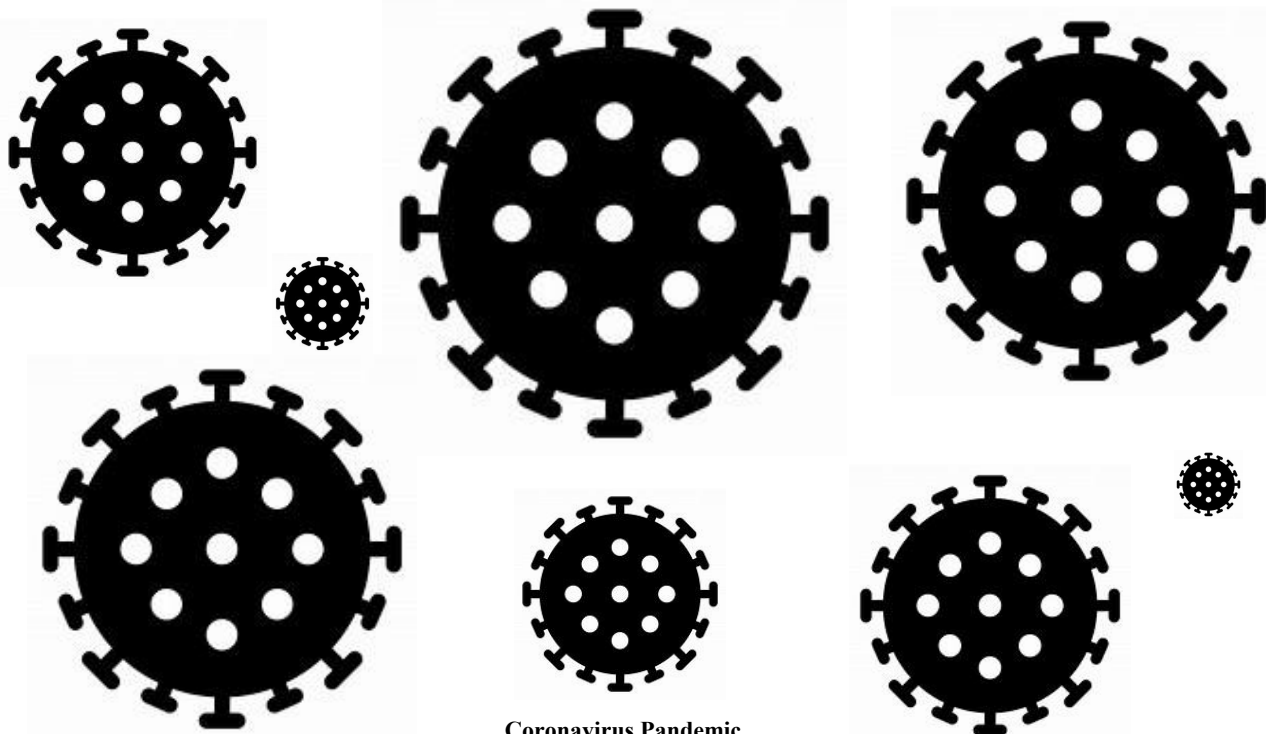


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Founded on October 15th, 1979 by: Arthur Goble, Fred W. Westbrook, John Snook, Roy Bischoff & Lewis Quince



Coronavirus Pandemic

***All club events: including meetings, parades,
Fairground participation, etc. are canceled for
the immediate future!***

Take care of you and yours and be SAFE!

Our Web Address: njaemc.org

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More Battery!

Lead Acid Deep Cycle Battery

As we discussed in our April newsletter, there are (2) major **types** of lead acid batteries: the **SLI** (starting-lights-ignition) and the more industrial-lesser used (and understood by the average person) **Deep Cycle** battery. The Deep Cycle battery is broadly divided into **stationary applications**; powering pumps, providing emergency and back-up power or lighting and **motive applications**; for use in marine applications, wheel chairs, fork lifts, golf carts...and over-the-road use in electric cars and with power draining "sleeper", RV and electronic accessories. The enactment of anti-idling laws and the anti-pollution rules have and will continue to increased their usage.

These batteries are capable of "deep" DOD (depth-of-discharge) and are able to withstand the damage that occurs when other batteries are "deeply drained" on a "regular" basis. With good maintenance practices industrial grade deep cycle batteries (often called traction batteries) found in forklifts and industrial applications could last up to 20 years. Deep cycle batteries come in Wet cell, Gel cell and AMG versions. To get an idea of the difference in construction at their extremes; the normal SLI (cranking) battery will usually have plates of about .040" (4/100") thickness, while a deep cycle "traction" battery can have plates of .250" (1/4") thickness. Deep cycle batteries come as both serviceable/maintenance accessible and maintenance free types.

In some applications, these battery can be used as an SLI battery and there is "generally" no problem...providing that allowance is made for the lower **cranking amps** compared to a similar size starting battery. As a general rule, if you are going to use a deep cycle battery as a starting battery, it should be **over-sized** 20%-30% and they do not work well in cold climates or with "cranky" engines.

Previously published in EQUIPMENT MANAGEMENT NEWS

Ed Snyder, Komatsu Northeast and Bob Triebel, Bucket Supply & Equipment Parts



There were only two types of Deep Cycle storage batteries in general use during the last century...one is the lead-acid battery and the other is the Edison Battery!

Thomas Edison, a Jersey Guy, with laboratories in Menlo Park (Edison) and West Orange NJ, and the most prolific of all inventors...developed an alkaline cell with iron as the anode material (-) and nickelic oxide as the cathode material (+). The electrolyte used was potassium hydroxide, the same as in modern nickel-cadmium and alkaline batteries.

The Edison Battery was an improvement on the unpatented and commercially "unsuccessful" work of Swedish inventor Waldemar Jungner. Jungner invented a type of nickel-cadmium battery in 1899. As with many of Edison inventions, he saw potential in an idea that others gave up on. He began development of a battery around 1900, with an eye toward the emerging electric automobile, truck, bus and railroad markets. The battery was developed at his West Orange Lab and Silver Lake (NJ) chemical facility, patent applied for in 1904 and put into production in the same year by the *Edison Storage Battery Company* of West Orange and Bloomfield NJ. In the early years of the automobile industry, electric cars were the predominant vehicle and Edison spent the first decade of the twentieth century developing the ultimate storage battery for it. Although the electric car production peaked in 1912 and the internal combustion engine eventually won out, Edison's battery would be used extensively throughout the first three quarters of the 20th century.

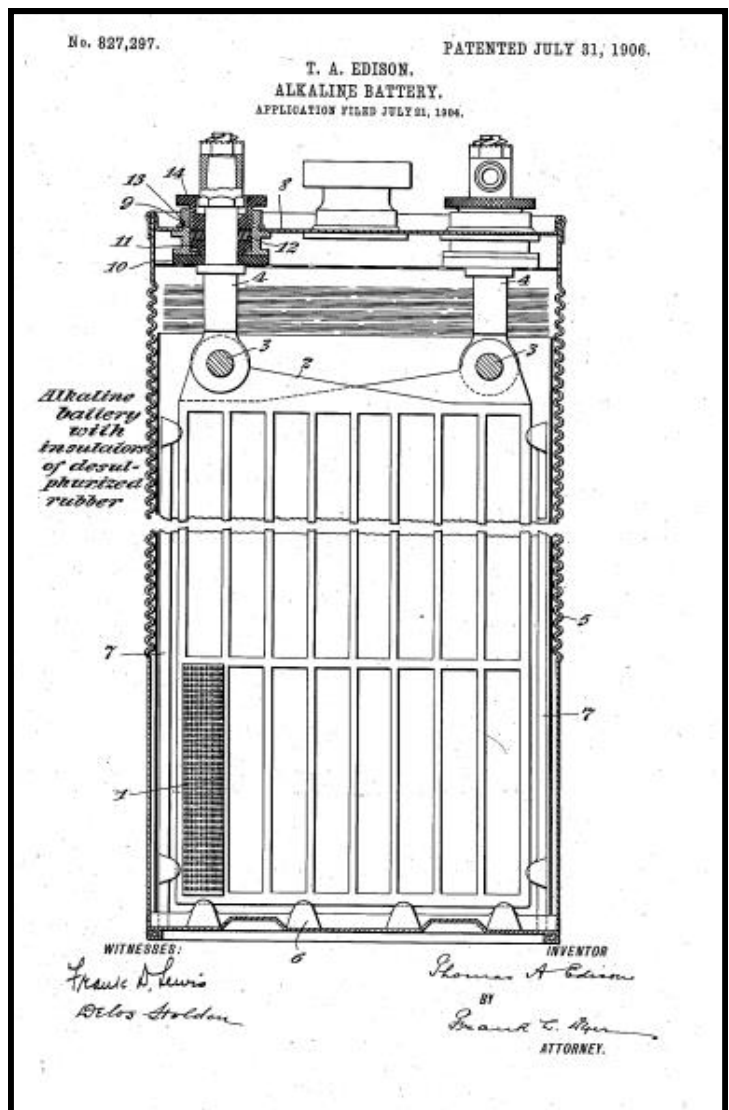
In the Edison cell, the positive plate consisted of a number of perforated steel tubes welded together and each tube was filled with nickel peroxide. The negative plate was constructed of many small, perforated steel pockets and each pocket was filled with pure powdered iron. As in the lead-acid cell, alternate positive and negative plates were separated by insulators, in this case rubber, and were stacked together. The electrolyte was a solution of potassium hydroxide and water. There was “no acid” in an Edison cell or battery. The assembled plates and insulators were housed in a nickel-plated steel container. The potassium hydroxide based electrolyte was not an acid and actually helped protect the container from corrosion. Water could be added if needed, but there was no flaking and deterioration of the plates like a lead-acid battery. The Edison cell produced 1.2 to 1.4 volts per cell, when fully charged, and dropped to .9 volts per cell when discharged. Because of the lower voltage per cell; a 6-volt battery took 5 cells, a 12 volt battery took 10 cells and a 24-volt battery took 20 cells. It had a higher internal resistance than the lead-acid battery, could not provide “as high” a rate of current as a lead-acid battery and was not used in SLI (starter motor) applications. Also, it was physically larger; the voltage tended to drop more than a lead acid battery in cold weather and it was sometimes pricier and sometimes cheaper. However, it was virtually maintenance free, could stand idle for long periods of time, was more

rugged, lighter in weight, could withstand exceptionally high temperatures, would never freeze, produced no fumes, could withstand an “extended” high rate of discharge and had a longer life than the lead-acid battery. Some standard production Edison batteries lasted up to 20 years. Prior to the advent of the lead-acid “deep cycle” battery, the Edison battery was the choice where a steady, reliable DC source of electricity was needed. It was used extensively for remote lighting situations, farming (windmill/solar generator charged), mining, marine service, alarm systems, forklift-golf cart propulsion and telephone or roadway/railroad signal systems. Its low self-discharge rate made it an excellent battery for use as a stand-by source of electricity...in an era where a “stand-by” source of electricity was “often” needed. It’s ruggedness (steel case) and low-to-no maintenance made it a natural for the many military adventures of the 20th century!

Edison’s batteries were manufactured from 1903 to 1960...and, surpassing both the light bulb and phonograph, was his “most profitable” invention. The Edison Storage Battery Company was sold to Exide in 1960, who discontinued US production of the Edison Battery in 1975. Now called the Edison-Lalande Battery, it continues to be manufactured in China and India and some former Soviet Bloc countries.

By the time of his death in 1931, Thomas Edison had received 1,093 U.S. patents, a total still untouched by any other inventor. Even more important, he created a “model” for research and development...or as he called it: “hard work and hard thinking”! Edison may have been the greatest “troubleshooter” of all time.

Equipment Managers Council of America archives...the pathfinders who founded an industry!



NJAE&MC—Upcoming Events

Check your email!



Memorial Day

May 25th 2020

Remembering those who
gave-their-all for our country!

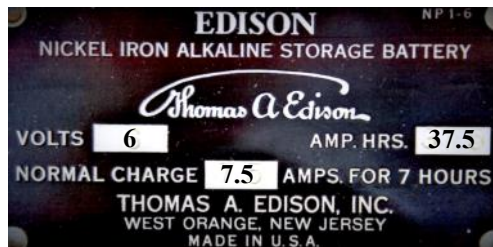
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police officers, firefighters,
EMTs, hospital/nursing home
staff and other essential
workers!



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