

*The "Father of Porcelain Insulators"
Had a Touch of Glass!*

Fred M. Locke had an interest in the sale and manufacture of insulators which covered a period of about twenty years. While his primary interest was in the development of porcelain insulators, he marketed them in glass as well.

Fred Locke's first interest in insulators came during the winter of 1883-84 in Canandaigua, New York, where he was employed as a telegraph operator by the New York Central and Hudson River Railroad, and the Pennsylvania Railroad companies. He operated the long line between Canandaigua and Harrisburg, Pennsylvania. The insulators on the line were sometimes wet or damp from rain or fog, which would allow a small electrical leakage across the insulator to ground. This leakage across each insulator frequently resulted in an inoperable line. After Fred was accused of going to sleep at the telegraph key during a period when the electrical leakage caused the telegraph line to go dead, he was determined to find a solution to the insulator problem.

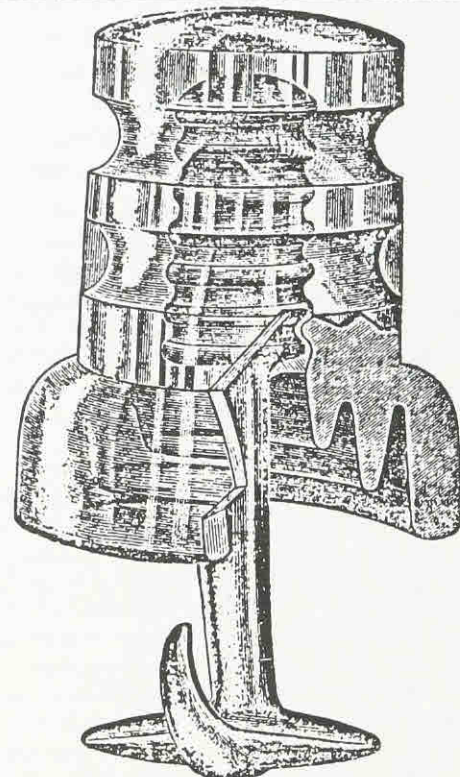
Fred experimented in order to learn what caused the electrical leakage, and then developed an insulator to reduce the problem. Fred and John Lapp were granted a patent in 1889 for a triple petticoat glass insulator with a ramshorn secured inside, and the whole assembly was embedded in the underside of the crossarm. An early 1890's catalog of the E.S. Greeley & Co., successor to the L.G. Tillotson & Co., pictured the Locke-Lapp insulator unit (Figure 1.). (The insulator patent and photograph can be found at the CD 289.9 listing.) The insulator had three petticoats which provided for longer mechanical distance between the wire and the pin. Melted sulfur and sand was used to secure the pin in the threaded pinhole, a technique Locke later used in cementing the large Locke No. 25 high voltage insulator to its glass sleeve (CD 342).

In 1892, Fred introduced a design for the first triple petticoat standard pintype insulator, made for him in glass by the Brookfield Glass Co. (The triple petticoat is pictured and described under CD 287.) A 1912 catalog of Brookfield shows the insulator offered for 10,000 volt line usage. (Figure 2.)

At this time, Fred began selling electrical and telegraph supplies, most of which were made to his specifications, with Brookfield making the glass insulators. Most of these glass insulators were embossed "Fred M. Locke, Victor, N.Y." and five various patent date markings were included on some styles. Some units find the erasures of "Fred M." from the embossings which were

SHEET No. 281.

THE E. S. GREELEY & CO., (Successors to L. G. Tillotson & Co.) NEW YORK.

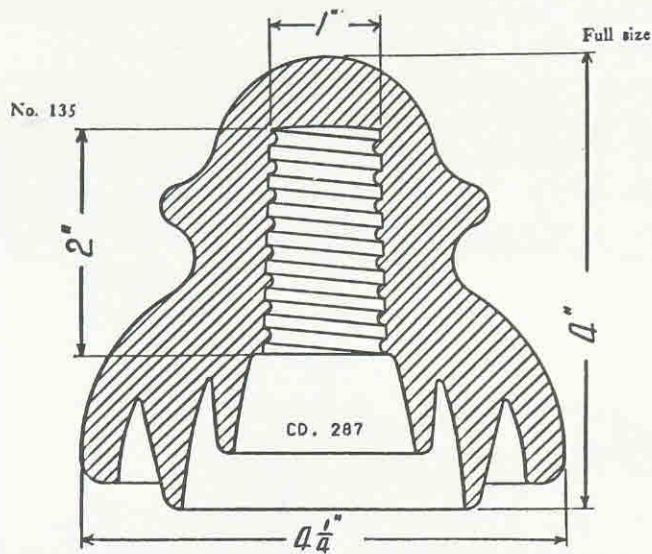


**TRIPLE PETTICOAT PATTERN
CROSS-ARM GLASS INSULATOR.**
Securely locked in place by a dowel driven at right angles through the cross-arm intersecting the groove in the insulator.
Cat. No. 44281.....Price each, \$0 10
In ordering, do not fail to mention the Cat. No. of each article wanted.

(Figure 1.) The Locke and Lapp insulator patented May 7, 1889, as listed in an early 1890's supply catalog of the E.S. Greeley & Co., New York.

produced following the 1903 departure of Locke from the Locke Insulator Manufacturing Company.

In 1894 Fred opened a small manufacturing plant near Victor at Fishers, New York, which made some of the items he sold and which also served as an office for his jobbing business. About this time, Fred became interested in porcelain insulators to meet the need of the emerging use of high voltage power lines. From 1895 to 1898 he contracted with at least two companies to make porcelain insulators to his designs. Initially in about 1895, Electrical Porcelain & Mfg. Co. supplied him with dry process styles, and soon thereafter, from about 1896 to 1898,



**BROOKFIELD No. 135
HIGH VOLTAGE TRIPLE PETTICOAT INSULATOR**

Code Word—Lucky

Line voltage	10,000
Average weight	30 ounces
Radius of groove	5/16 inch
Number per barrel.....	125
Average weight per thousand, packed.....	2,200 pounds

(Figure 2.) CD 287 pictured in a 1912 Brookfield catalog. Embossings include "F.M. Locke, Victor, N.Y."-marked units as well as units using only the Brookfield style number, "No. 135".

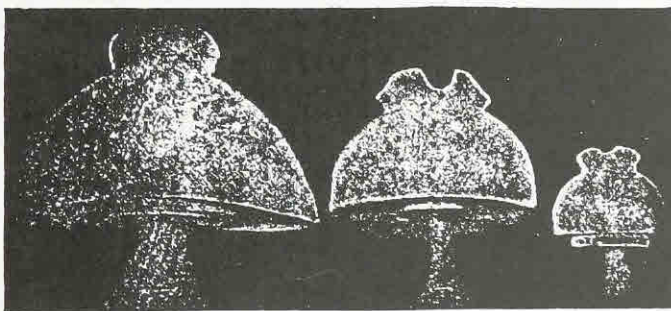
Imperial Porcelain Works supplied him with superior wet process styles.

In 1898, Fred Locke started manufacturing wet process porcelain insulators at a small plant in Victor, New York. In September 1902, Fred's company was

An ad for Locke china and glass insulators is from the June 30, 1900 issue of *Electrical World and Engineer*. (Courtesy of Elton Gish)

incorporated as the "Locke Insulator Manufacturing Co." with him as president. Then, in late 1903, Fred left the company and retired from direct involvement with insulator manufacture. As late as 1906, Locke was still advertising Brookfield-manufactured glass insulators in their catalog.

HIGH POTENTIAL INSULATORS



Will carry any Current up to 50,000 volts.
Used on the Niagara Falls and Buffalo Transmission Lines.
Impossible to puncture or break down the insulation.
Greatest possible strength, both electrical and mechanical.

HIGHEST INSULATION
IN TRIPLE PETTICOAT, CHINA AND GLASS.

INSULATORS :: :: ::
For High Voltage Power Transmission, Electric Railway,
Electric Light, Telegraph and Telephone Lines.

SEND FOR CATALOGUE.

FRED. M. LOCKE, - 300 Coville Avenue, VICTOR, N. Y.

An ad for High Potential insulators from Fred M. Locke, appearing in *American Electrician*, April, 1898. (Courtesy of Elton Gish)

When Fred retired, he built a large laboratory at his home in Victor where he experimented with various insulator designs and glass formulations. It was his work on glass formulas which led to the development of Pyrex glass by Corning Glass Works. (See Corning Glass Works chapter)













Fred's work in the early development of high voltage porcelain insulators, although brief, has earned him the reference as "the father of porcelain insulators". He was granted 54 utility patents and three design patents during the years 1889 to 1933, with the last two utility patents being granted after his death in 1930.

For detailed history of Fred Locke and the Locke Insulator Manufacturing Co., as well as histories of all porcelain insulator-manufacturing companies, refer to Jack Tod's book, *Porcelain Insulator Guide Book, 1988 Edition*. (See Bibliography)

Elton Gish authored "The Locke Insulator Manufacturing Co." (See Brookfield -- A Long Stretch chapter for biography)

**80% Of the Railways described in
this issue are operating on
Victor Insulators**

BECAUSE IT'S BEST PRACTICE

 <p>This type used by Indianapolis, Columbus & So. Traction Co.</p>	 <p>This type used by Cincinnati, Milford & Loveland Traction Co.</p>
 <p>This type used by Cleveland & Southwestern Traction Co. Rapid Railway System</p>	 <p>This type used by Cincinnati & Columbus Traction Co. Ft. Wayne, Van Wert & Lima Traction Co. Ft. Wayne & Wabash Valley Traction Co. Indianapolis & Cincinnati Traction Co.</p>
 <p>This type used by Cleveland & Southwestern Traction Co. Toledo & Western Railway Co. Stark Electric Railway Co. Western Ohio Railway Co.</p>	 <p>This type used by Lake Shore Electric Railway Co. Scioto Valley Traction Co. Western Ohio Railway Co.</p>
 <p>This type used by Lake Shore Electric Railway Co. Detroit, Ypsilanti, Ann Arbor & Jackson Railway Co.</p>	 <p>This type used by Columbus, London & Springfield Railway Co. Columbus, Delaware and Marion Railway Co. Cincinnati & Columbus Traction Co. Detroit, Ypsilanti, Ann Arbor & Jackson Railway Co. Indianapolis & Northwestern Traction Co.</p>
 <p>STRAIN INSULATORS, used by Columbus, Delaware & Marion Railway Co. Scioto Valley Traction Co.</p>	 <p>This type used by Canton-Akron Railway Co. Columbus, London & Springfield Railway Co. Cincinnati, Milford & Loveland Traction Co. Cincinnati, Georgetown & Portsmouth Railroad Co. Indianapolis & Cincinnati Traction Co. Eastern Ohio Railway Co.</p>
 <p>WALL INSULATORS, used by Cincinnati, Milford & Loveland Traction Co. Toledo, Port Clinton & Lakeside Railway Co. Indianapolis Union Traction Co. Fort Wayne & Wabash Valley Traction Co.</p>	 <p>This type used by Lake Shore Electric Railway Co.</p>

The above illustrations represent general types only and each type is made in several sizes
If you have been interested this far, you should send for
THE INSULATOR BOOK, 1907 Edition, which will issue November 10th

THE LOCKE INSULATOR MANUFACTURING COMPANY
VICTOR, N. Y. U. S. A.

Locke Insulator Manufacturing Company advertisement from a 1906 Street Railway Journal.
(Courtesy of Elton Gish)