



CD 213

CD 213

HEMINGRAY

(F-Skirt) HEMINGRAY (R-Skirt) N° 43 RDP
Aqua

(F-Skirt) HEMINGRAY (R-Skirt) N° 43 SDP
Aqua

(F-Skirt) HEMINGRAY (R-Skirt) [Vertical
Bar] N° 43 RDP
Aqua, Hemingray Blue

(F-Skirt) HEMINGRAY (R-Skirt) [Vertical
Bar] N° 43 SDP
Aqua

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-
Skirt) N° 43 RDP
Aqua, Emerald Green, Hemingray Blue

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-
Skirt) N° 43 SDP
Aqua, Hemingray Blue



CD 214

CD 214

ARMSTRONG

(F-Skirt) *Armstrong's* NO 10 (R-Skirt) MADE
IN U.S.A. ['A' in a circle] [Number and Dots]
SB
Clear, Light Straw

HEMINGRAY

(F-Skirt) HEMINGRAY-43 (R-Skirt) MADE
IN U.S.A. RDP
7-up Green, Blue, Aqua, Dark Green Aqua, Ice
Blue

(F-Skirt) HEMINGRAY-43 (R-Skirt) MADE
IN U.S.A./[Numbers and Dots] CB
Yellow Tint, Clear

(F-Skirt) HEMINGRAY-43 (R-Skirt) MADE
IN U.S.A./[Numbers and Dots] RDP
Clear, Straw

(F-Skirt) HEMINGRAY-43/[Numbers and
Dots] (R-Skirt) MADE IN U.S.A./[Number]
RDP
Off Clear

NACIONALES

(F-Skirt) NACIONALES (R-Skirt) TELEGRAFOS RDP
Green Amber, Dark Red Amber, Golden Amber

WHITALL TATUM

(F-Skirt) WHITALL TATUM Co. NO 10/[Number] (R-Skirt) MADE IN U.S.A. ['W/T' in a triangle]/[Number] SB
Smoke, Clear, Light Green, Light Aqua

LOWEX

(F-Skirt) LOWEX/REG.U.S.PAT.OFF. (R-Skirt) -MADE IN U.S.A.- [Number] SB
Light Straw

WHITALL TATUM

(F-Skirt) (Arc)WHITALL TATUM/512U (R-Skirt) (Arc)MADE IN U.S.A./[Numbers]/['A' in a circle] SB
Clear, Smoke, Amber



CD 216

CD 216

ARMSTRONG

(F-Skirt) *Armstrong's* 51-2U (R-Skirt) MADE IN U.S.A. ['A' in a circle] [Numbers and Dots] SB
Clear, Root Beer Amber

HEMINGRAY

(F-Skirt) HEMINGRAY-661 (R-Skirt) MADE IN U.S.A./ [Numbers] SB
Flashed Amber, Clear, Red Amber



CD 217

CD 217

ARMSTRONG

(F-Skirt) *Armstrong's* 51 C3 (R-Skirt) MADE IN U.S.A. ['A' in a circle] [Numbers and Dots] SB
Root Beer Amber



CD 218

CD 218

HEMINGRAY

(F-Skirt) HEMINGRAY-660 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Light Green, Ice Green, Clear, Straw, Carnival

CD 219

HEMINGRAY

(F-Skirt) HEMINGRAY-66/[Numbers] (R-Skirt) MADE
IN U.S.A./[Number] SB
Red Amber, Clear

(F-Skirt) HEMINGRAY-660 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Clear

(F-Skirt) HEMINGRAY-660 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] SB
Amber, Clear, Ice Blue

(F-Skirt) HEMINGRAY-660/LOWEX (R-Skirt) MADE
IN U.S.A./[Numbers and Dots] SB
Clear w/Carnival Top, Ice Green, Olive Amber, Honey
Amber

(F-Skirt) HEMINGRAY-660/[Numbers and Dots] (R-
Skirt) MADE IN U.S.A./[Numbers and Dots] SB
Olive Amber

NO NAME

[No Embossing] SB
Clear



CD 219



CD 220

CD 220

HEMINGRAY

(F-Skirt) HEMINGRAY-67/[Numbers] (R-Skirt)
MADE IN U.S.A./[Number] SB
Light Amber

(F-Skirt) HEMINGRAY-670 (R-Skirt) MADE
IN U.S.A./[Numbers and Dots] CB
Ice Aqua, Clear, Off Clear

(F-Skirt) HEMINGRAY-670 (R-Skirt) MADE
IN U.S.A./[Numbers and Dots] SB
Clear

(F-Skirt) HEMINGRAY-670/LOWEX (R-Skirt)
MADE IN U.S.A./[Numbers and Dots] SB
Ice Green w/Treated Top

(F-Skirt) HEMINGRAY-670/LOWEX/
REG.U.S.PAT.OFF. (R-Skirt) MADE IN
U.S.A./[Numbers and Dots] CB
Ice Blue, Amber

(F-Skirt) HEMINGRAY-670/LOWEX/
REG.U.S.PAT.OFF. (R-Skirt) MADE IN
U.S.A./[Numbers and Dots] SB
Olive Amber

(F-Skirt) HEMINGRAY-670/['LOWEX'
Blotted out] (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Clear

(F-Skirt) HEMINGRAY-670/['LOWEX'
Blotted out]/REG. U.S. PAT. OFF (R-
Skirt)MADE IN U.S.A./[Number and Dots]
CB
Blue Tint, Clear w/Carnival Top, Clear, Straw

(F-Skirt) HEMINGRAY-670/[Numbers and
Dots] (R-Skirt) MADE IN U.S.A./[Number]
SB
Clear, Amber

CD 221

HEMINGRAY

(F-Skirt) HEMINGRAY-68 (R-Skirt) MADE IN U.S.A./
[Number and Dots] SB
Amber

(F-Skirt) HEMINGRAY-680 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Clear, Ice Green, Straw



CD 221

(F-Skirt) HEMINGRAY-680/LOWEX (R-Skirt) MADE
IN U.S.A./[Number] SB
Ice Green, Ice Green w/Carnival Top, Clear

(F-Skirt) HEMINGRAY-680/LOWEX/
REG.U.S.PAT.OFF. (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] SB
Clear, Clear w/Carnival Top, Ice Green

(F-Skirt) HEMINGRAY_68/[Numbers and Dots] (R-
Skirt) MADE IN U.S.A./[Number] SB
Olive Amber

(F-Skirt) HEMINGRAY_680/['LOWEX' Blotted out]/
['REG. U.S. PAT.OFF.' Blotted out] (R-Skirt) MADE IN
U.S.A./[Numbers and Dots] SB
Clear

WHITALL TATUM

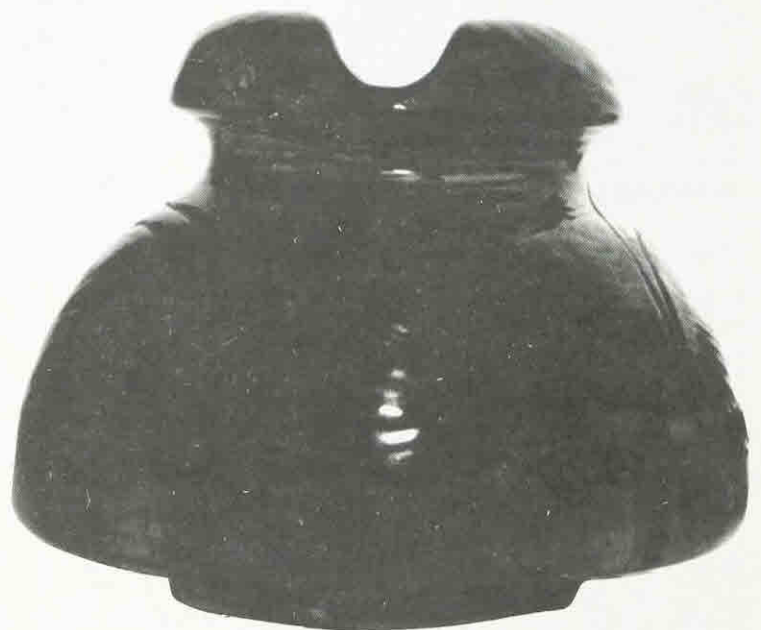
(F-Skirt) WHITALL TATUM CO. NO. 514/[Number]
(R-Skirt) MADE IN U.S.A. ['W/T' in a triangle] SB
Dark Red Amber



CD 225

BROOKFIELD
(F-Skirt) BROOKFIELD SB
Dark Aqua

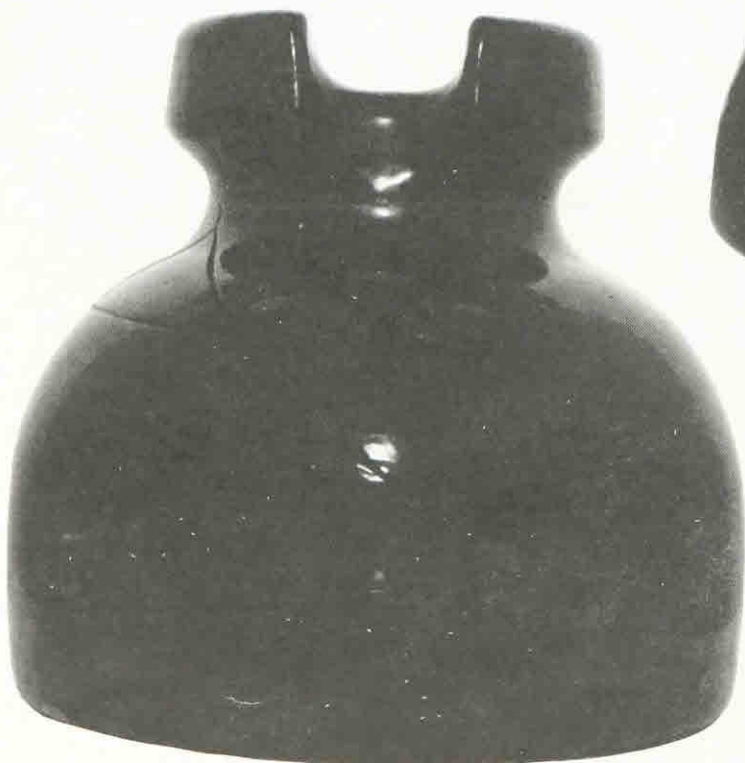
CD 225



CD 226

CD 226

NO NAME
(F-Skirt) NO.115 SB
Aqua, Green



CD 226.3

CD 226.3

B
(F-Skirt) B SB
Emerald Green Blackglass



CD 228

BROOKFIELD
(F-Skirt) BROOKFIELD SB
Dark Aqua

CD 228.5

NO NAME
(F-Skirt) 51-C2 (R-Skirt)
['A' in a circle] {An
Armstrong product} SB
Clear

CD 228



CD 228.5



CD 229.6

CD 229.6

NO NAME
[No Embossing] {Fry Glass} SB
Black Opalescent



CD 230

CD 230

HEMINGRAY

(F-Skirt) HEMINGRAY (R-Skirt) 512/[Number] MADE IN U.S.A. [Number and Dots] CB
Clear

(F-Skirt) HEMINGRAY (R-Skirt) 512/[Number] MADE IN U.S.A. [Number and Dots] SB
Clear

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-Skirt) D-512 SB
Citron, Ice Blue, Honey Amber

(F-Skirt) HEMINGRAY/MADE IN U.S.A.
(R-Skirt) LOWEX/D512 SB
Honey Amber

(F-Skirt) HEMINGRAY/MADE IN U.S.A.
(R-Skirt) [Number]/D-512 SB
Light Carnival, Yellow Amber, Dark Orange Amber

(F-Skirt) [Number and Dots]/HEMINGRAY/MADE IN U.S.A. (R-Skirt) [Number]/D-512 SB
Ice Blue, Amber, Red Amber, Carnival, Deep Olive Amber, Light Green, Clear

(F-Skirt) [Numbers and Dots] HEMINGRAY/MADE IN U.S.A. (R-Skirt) D-512 SB
Amber

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN U.S.A. (R-Skirt) LOWEX/D-512 SB
Honey Amber

(F-Skirt) [Numbers] HEMINGRAY/MADE IN U.S.A. (R-Skirt) LOWEX/D-512 SB
Amber

LOWEX

(F-Skirt) LOWEX/REG. U.S. PAT. OFF (R-Skirt) 512/[Number] MADE IN U.S.A. [Number] SB
Deep Olive, Honey Amber, Clear

NO NAME

(F-Skirt) 512/[Number] MADE IN U.S.A. SB
Clear

CD 230.1

HEMINGRAY

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-Skirt) D-512 SB
Aqua, Green Aqua



CD 230.1



CD 230.2

CD 230.2

ARMSTRONG

(F-Skirt) *Armstrong's* 51-C1A (R-Skirt)
MADE IN U.S.A. ['A' in a circle] [Numbers] SB
Root Beer Amber

CD 231

HEMINGRAY

(F-Skirt) HEMINGRAY-820/TEMPERED (R-Skirt) MADE IN U.S.A./[Numbers] CB
Clear

KIMBLE

(F-Skirt) KIMBLE-820/TEMPERED (R-Skirt) MADE IN U.S.A./[Numbers and Dots] CB
Light Pink, Clear, Peach

(F-Skirt) KIMBLE-820/[Blotted out Embossing]/TEMPERED (R-Skirt) MADE IN U.S.A./[Numbers and Dots] CB
Light Pink, Peach, Clear



CD 231



CD 231.2

KIMBLE
 (F-Skirt) KIMBLE-820/TEMPERED
 (R-Skirt) MADE IN U.S.A./[Num-
 bers] SB
 Clear, Light Straw

CD 231.2



CD 232

HEMINGRAY
 (F-Skirt) HEMINGRAY-513 (R-Skirt) MADE IN U.S.A./
 [Numbers] CB
 Clear

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-Skirt) D-
 513 SB
 Ice Aqua

CD 232

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
 U.S.A. (R-Skirt) [Number] D-513 SB
 Clear, Ice Blue, Carnival, Honey Amber, Ice Aqua

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
 U.S.A. (R-Skirt) [Number]/D-513 CB
 Clear, Light Straw



CD 232.1

HEMINGRAY
 (F-Skirt) HEMINGRAY/
 MADE IN U.S.A. SB
 Dark Aqua

CD 232.1



CD 233

HEMINGRAY
 (F-Skirt) HEMINGRAY-E.3. (R-Skirt) MADE
 IN U.S.A. SB
 Aqua, Clear, Lemon, Off Clear

PYREX
 (F-Skirt) PYREX REG. U.S. PAT. OFF. (R-
 Skirt) 61/CORNING MADE IN U.S.A. SB
 Clear, Straw, Lemon, Carnival

(F-Skirt) PYREX REG. U.S. PAT. OFF. (R-
 Skirt) 661/CORNING MADE IN U.S.A. SB
 Carnival, Lemon, Clear

(F-Skirt) PYREX REG. U.S. PAT. OFF. (R-
 Skirt) CORNING MADE IN U.S.A. SB
 Clear, Straw

CD 233

CD 233.2

HEMINGRAY

(F-Skirt) HEMINGRAY-511/LOWEX (R-Skirt) [Number]/MADE IN U.S.A. SB
Green Tint, Clear



CD 233.2

CD 234

CD 234

PYREX

(F-Skirt) PYREX T.M. REG. U.S.
PAT. OFF (R-Skirt) [Letter]/MADE
IN U.S.A. 63 SB
Clear, Carnival, Straw, Light Yellow



CD 235

PYREX

(F-Skirt) CORNING PYREX T.M. REG. U.S.
PAT. (R-Skirt) OFF. MADE IN U.S.A. 662 SB
Clear, Carnival

(F-Skirt) CORNING PYREX T.M. REG. U.S.
PAT. (R-Skirt) OFF. MADE IN U.S.A. 62 SB
Clear, Carnival

(F-Skirt) CORNING PYREX T.M. REG. U.S.
PAT. (R-Skirt) [Number]/OFF. MADE IN
U.S.A. 662 SB
Clear

(F-Skirt) CORNING PYREX T.M. REG. U.S. (R-Skirt) PAT. OFF. MADE IN U.S.A. 662 SB
Clear



CD 235

(F-Skirt) CORNING {'C' is backwards}
PYREX T.M. REG. U.S. PAT. (R-Skirt)
OFF MADE IN U.S.A. 62 SB
Carnival

(F-Skirt) CRNING {'C' is backwards, Note
Spelling} PYREX T.M. REG. U.S. PAT.
OFF. (R-Skirt) MADE IN U.S.A. 662 SB
Carnival

(F-Skirt) [Number]/CORNING PYREX
T.M.REG. U.S. PAT. (R-Skirt) OFF.
MADE IN U.S.A. 662 SB
Clear



CD 236

BROOKFIELD

(F-Skirt) BROOKFIELD SB
Dark Aqua

CD 236



CD 237

CD 237

HEMINGRAY

(F-Skirt) HEMINGRAY-72 (R-Skirt) MADE IN U.S.A.
RDP
Clear, Ice Blue, Ice Aqua

(F-Skirt) HEMINGRAY-72.A/[Numbers] (R-Skirt)
MADE IN U.S.A. RDP
Ice Blue

(F-Skirt) HEMINGRAY-72/[Numbers and Dots] (R-
Skirt) MADE IN U.S.A. SB
Clear

(F-Skirt) HEMINGRAY-72/[Numbers and Dots] (R-
Skirt) MADE IN U.S.A./[Number] SB
Clear, Ice Blue

(F-Skirt) HEMINGRAY-720 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Clear

(F-Skirt) HEMINGRAY-720/[Numbers] (R-Skirt) MADE
IN U.S.A./[Numbers] SB
Clear, Ice Blue



CD 238

CD 238

HEMINGRAY

(F-Skirt) HEMINGRAY-514 (R-Skirt) MADE IN U.S.A./
[Number] SB
Light Honey Amber, Clear

(F-Skirt) HEMINGRAY-514 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Honey Amber, Clear, Light Straw

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
U.S.A. (R-Skirt) D-514 CB
Clear, Ice Blue

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
U.S.A. (R-Skirt) D-514 SB
Amber, Clear, Green Tint

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
U.S.A. (R-Skirt) [Number] D-514 SB
Honey Amber

(F-Skirt) [Numbers and Dots]/HEMINGRAY/MADE IN
U.S.A. (R-Skirt) [Number]/D-514 CB
Clear, Green Tint



CD 238.2

NO NAME
(F-Skirt) ['A' in a circle]/[Numbers] {An
Armstrong product} SB
Clear

CD 238.2



CD 239

CD 239

HEMINGRAY

(F-Skirt) HEMINGRAY/['KIMBLE-830' Blotted out]/
TEMPERED (R-Skirt) MADE IN U.S.A./[Number and
Dots] SB
Clear w/Carnival Top

(F-Skirt) KIMBLE/HEMINGRAY-830 [Letter]/TEM-
PERED (R-Skirt) MADE IN U.S.A./[Numbers and Dots]
CB
Clear

KIMBLE

(F-Skirt) KIMBLE [Letter]/830/TEMPERED (R-Skirt)
MADE IN U.S.A./[Numbers and Dots] CB
Clear

(F-Skirt) KIMBLE-830 (R-Skirt) MADE IN U.S.A./
[Numbers] SB
Clear w/Carnival Top

(F-Skirt) KIMBLE-830/TEMPERED (R-Skirt) MADE IN
U.S.A./[Numbers and Dots] CB
Peach, Light Green, Clear, Straw



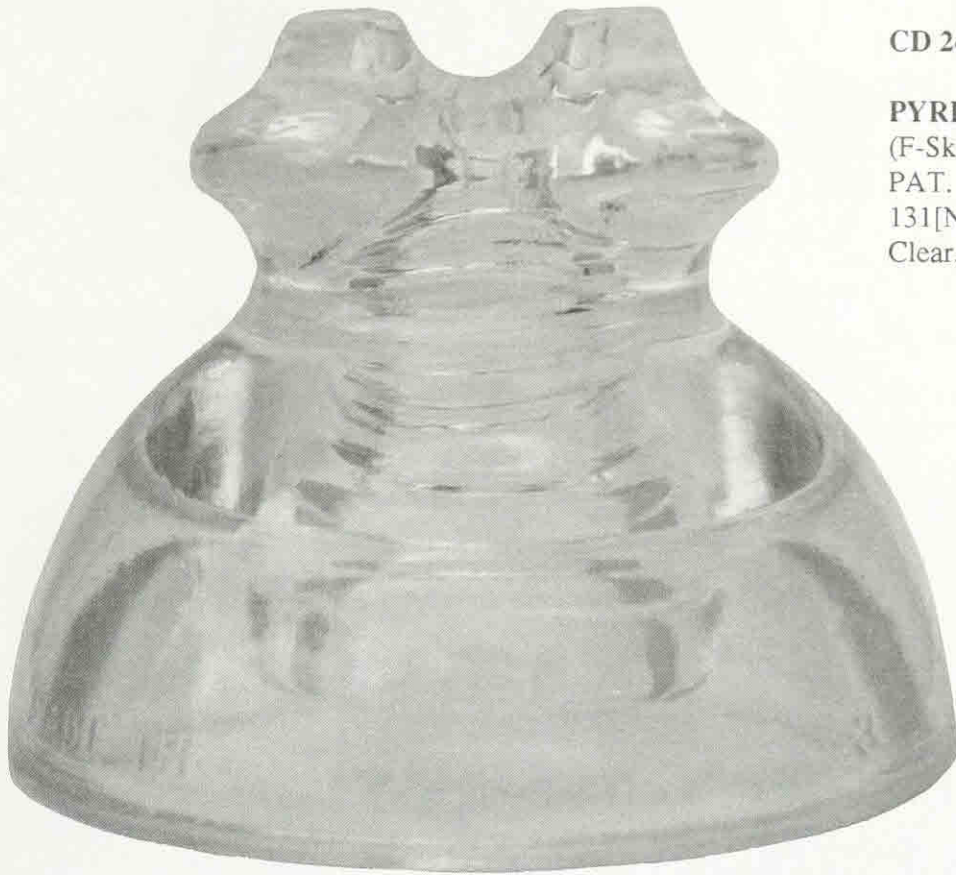
CD 239.2

(Photograph courtesy of Mike Guthrie)

CD 239.2

KIMBLE

(F-Skirt) KIMBLE-850 (R-Skirt) MADE IN U.S.A./
[Numbers] CB
Clear

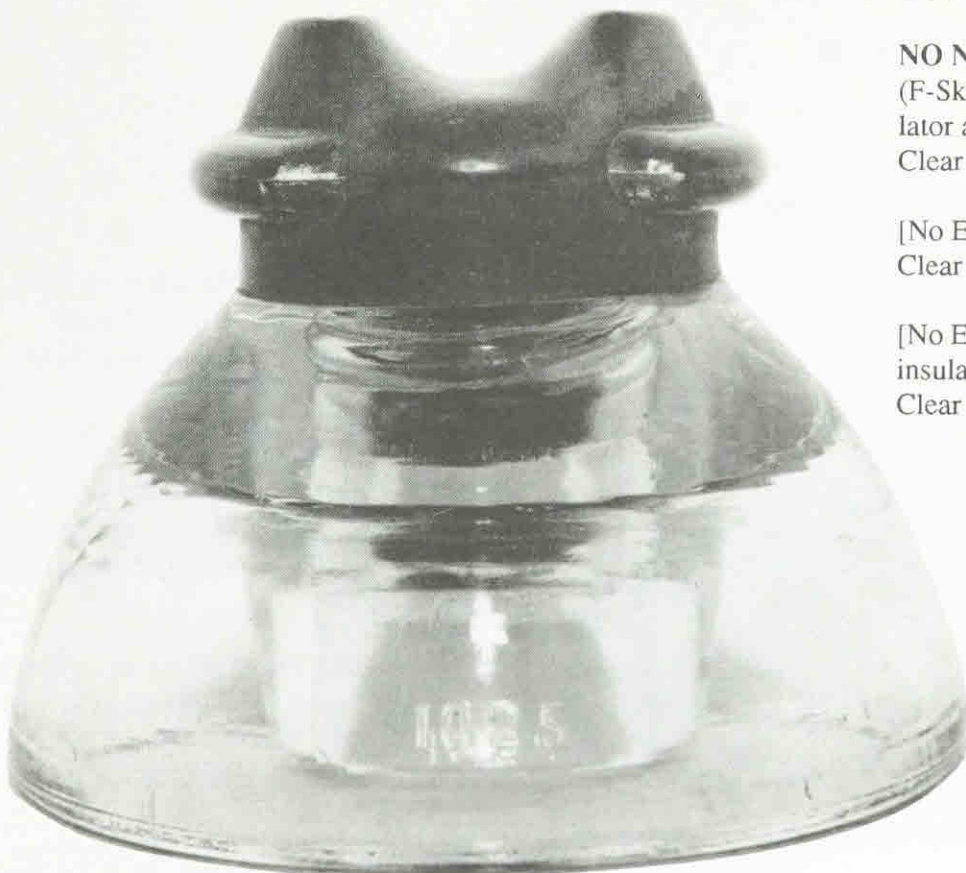


CD 240

PYREX

(F-Skirt) CORNING PYREX REG. U.S.
PAT. OFF. (R-Skirt) MADE IN U.S.A. -
131[Number] SB
Clear, Yellow Tint

CD 240



CD 240.2

NO NAME

(F-Skirt) 1025 {Metal cap covers the insu-
lator above the wire groove} SB
Clear

[No Embossing] SB
Clear

[No Embossing] {Metal cap covers the
insulator above the wire groove} SB
Clear

CD 240.2



CD 240.5

CD 240.5

PYREX

(F-Skirt) CORNING
 PYREX REG. U.S. PAT.
 OFF. (R-Skirt) MADE IN
 U.S.A. 161 SB
 Light Lemon, Clear

(Skirt) CORNING PYREX
 T.M.REG. U.S. PAT.OFF.
 MADE IN U.S.A. 161
 [Number] {Embossed all the
 way around the skirt} SB
 Clear



CD 241

CD 241

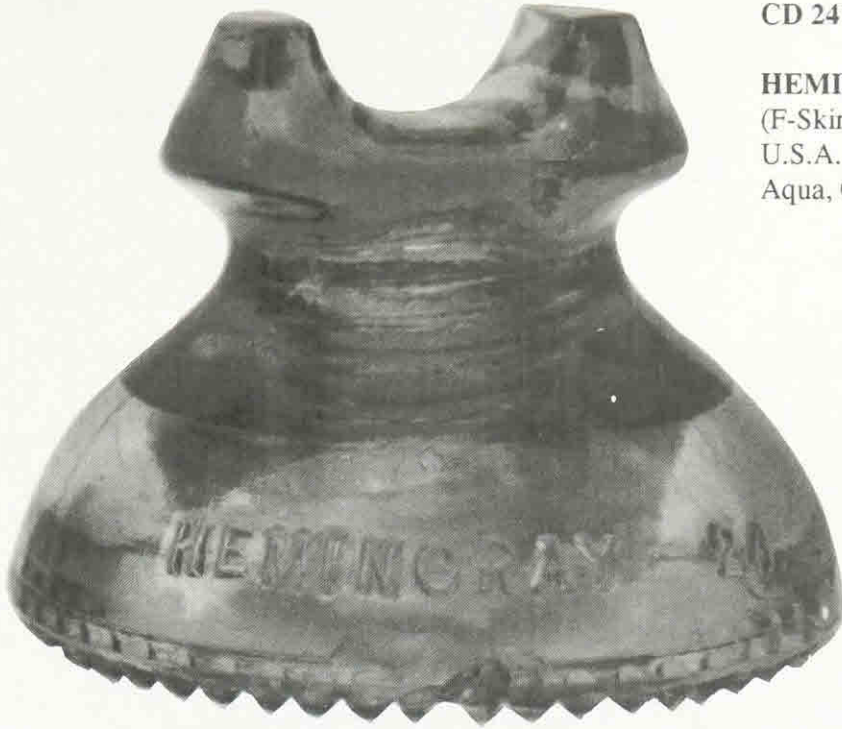
HEMINGRAY

(F-Skirt) HEMINGRAY-23 (R-
 Skirt) MADE IN U.S.A. RDP
 Honey Amber, Hemingray Blue,
 Aqua

(F-Skirt) HEMINGRAY-23 (R-
 Skirt) MADE IN U.S.A. SDP
 Root Beer Amber, Aqua, Hemingray
 Blue, Yellow Amber, Orange Amber

LOCKE

(F-Skirt) PAT'D BY F.M. LOCKE/
 VICTOR/N.Y. (R-Skirt) MARCH
 31, 1914 FEB 2, 1915/OCT. 12,
 1915 {Embossing is upsidedown}
 SB
 Clear, Aqua



CD 241.2

HEMINGRAY

(F-Skirt) HEMINGRAY-24 (R-Skirt) MADE IN
U.S.A. SDP

Aqua, Golden Amber, Hemingray Blue

CD 241.2



CD 242

CD 242

HEMINGRAY

(F-Skirt) HEMINGRAY-66 (R-Skirt) MADE IN
U.S.A. SDP

Aqua, Hemingray Blue



CD 243

CD 243

HEMINGRAY

(F-Skirt) HEMINGRAY-88 (R-Skirt) MADE IN U.S.A. SDP
Aqua, Hemingray Blue

CD 244

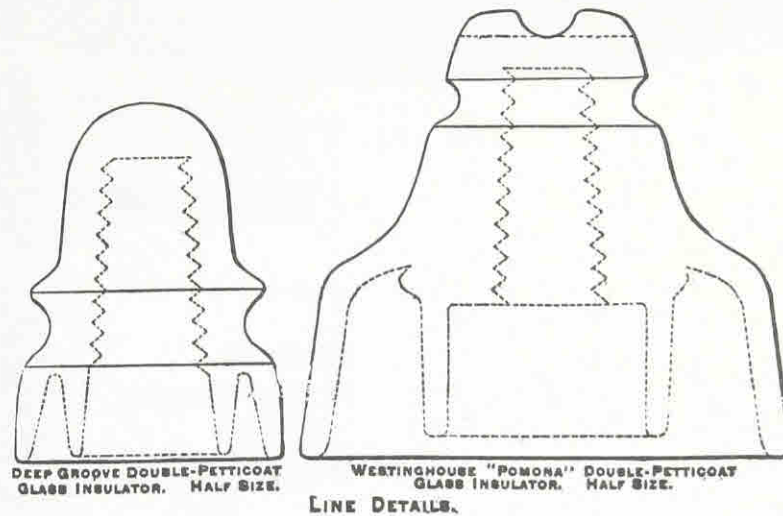
NO NAME

[No Embossing] SB

Purple



CD 244



In a 1894 State of California geological and mining report, the CD 244 was pictured and referred to as the Westinghouse "**Pomono**" double petticoat glass insulator. (Courtesy of David Downes)

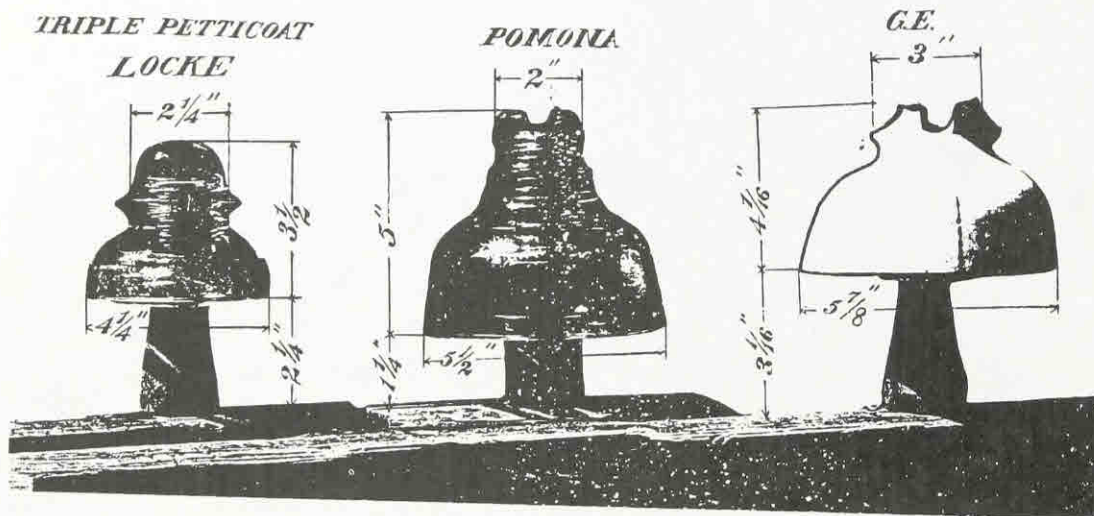
Research of power company records also show that the San Antonio Light and Power Company began construction on November 28, 1892, of a fourteen mile long line from San Antonio Canyon to Pamona, California. Construction was also started on a second line from San Antonio Canyon to San Bernardino, California, a distance of twenty-eight miles. The line was a 10kV line and used the CD 244 "Pomona" insulators. Normal operation began February 16, 1893. (Courtesy of Elton Gish)

In Volume II, page 153 of *Ralph Davenport Mershon* by Edith Cookins, there is discussion of an experimental line testing proposal.

"In the spring of 1895, Mr. L.L. Nunn, General Manager of the Telluride Power Transmission Company, having recognized as a result of his experience in power transmission matters the necessity for more accurate data than was then available as to the use of high voltages on transmission lines, made arrangements with the Westinghouse Electric and Manufacturing Company for taking up jointly with the latter company a line of work which should lead to the acquisition of the required data.

In accordance with this arrangement apparatus was built for the purpose of running, at various voltages higher than those ordinarily in use, the synchronous power transmission plant originally installed for Mr. Nunn by the Westinghouse Company for supplying power to the mill of the Gold King Mining and Milling Company."

The line constructed ran from Ames to the Gold King Mill, a distance of 2.2 miles. It consisted of sixty-two poles, each with three crossarms, the upper one being approximately twenty-six feet from the ground. Each crossarm had one circuit and each circuit had its own type of insulator. The circuit was called the "Pomona, Locke.G.E." The Locke insulator had a triple petticoat, while the other two insulators were a double petticoat style.



Three types of Insulators used in experiment

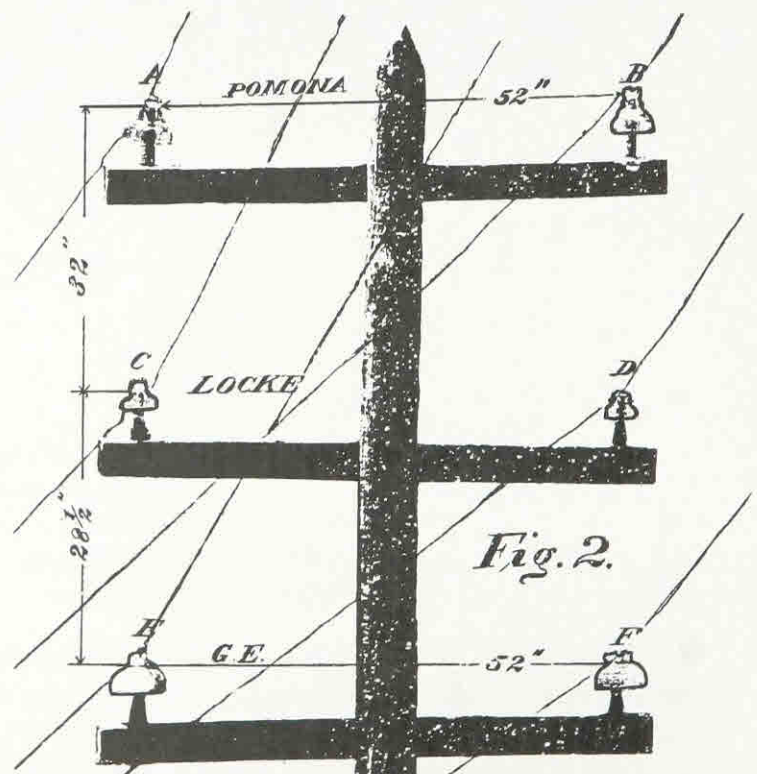


Fig. 2.

Top of pole, showing three crossarms

As shown in the illustration, the bottom crossarm contained white porcelain G.E. power insulators, the middle crossarm had two CD 287 Locke No. 15 style insulators, while the top crossarm had two of the "Pomona" insulators.

Even though the CD 244 "Pomona" has been noted as in use on several different lines, there have only been a very limited number of the insulators recovered. To date, there are only four or five known specimens. (Information on high voltage experiments at Telluride courtesy of Rick Soller)



CD 244.5

CD 244.5

GREELEY

(F-Skirt) L & S/PATTERN (R-Skirt)

GREELEY/N.Y. SB

Aqua



CD 245

CD 245

NO NAME

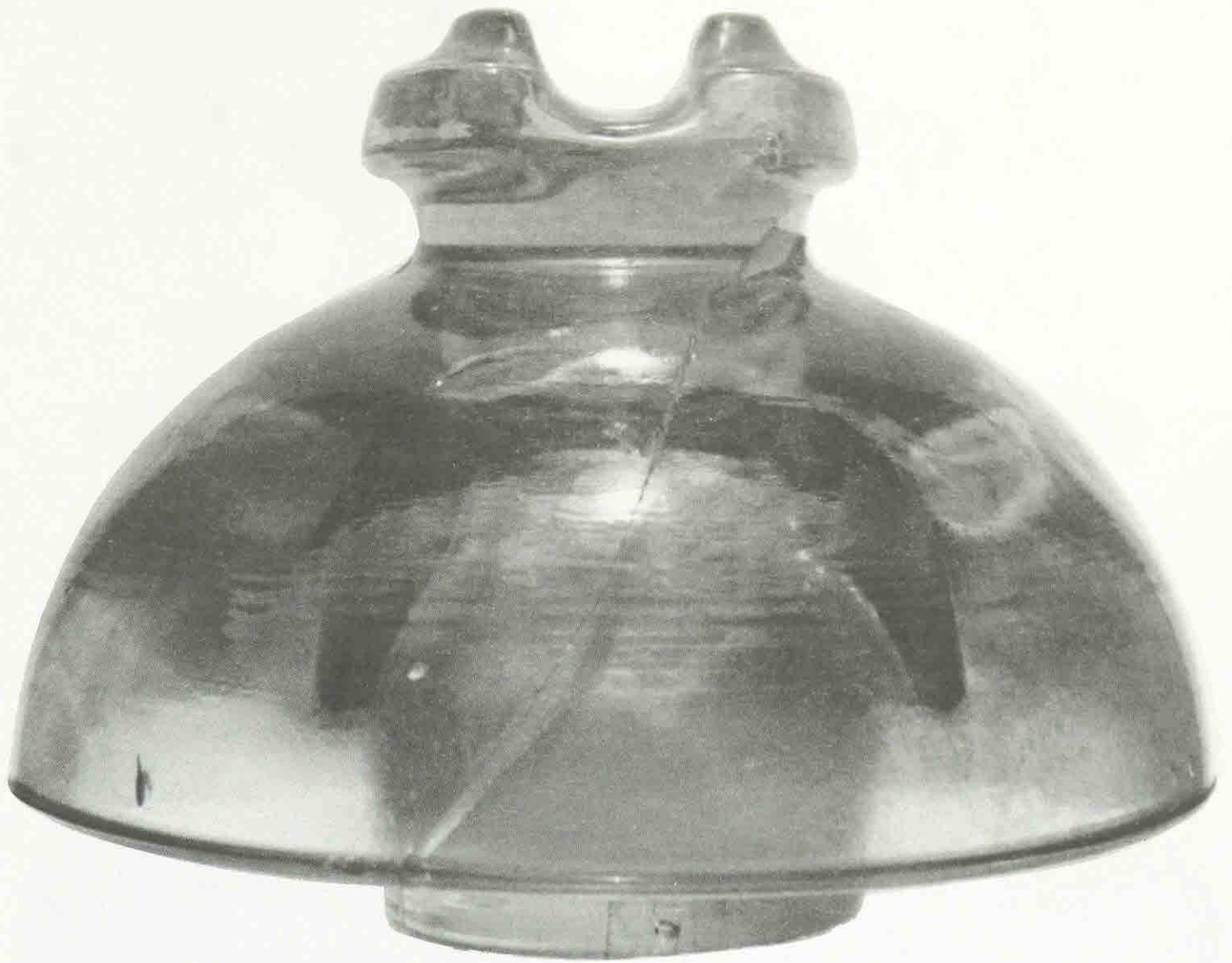
(F-Skirt) 9200 SB

Aqua, Light Blue, Green

T-H.

(F-Skirt) T-H (R-Skirt) 9200 SB

Aqua, Light Blue, Light Aqua



CD 247

CD 247

NO NAME
[No Embossing] SB
Aqua, Light Green



CD 248

CD 248/311

HEMINGRAY

(248 Top) (F-Skirt) HEMINGRAY (R-Skirt) N° 79
{CD311 sleeve is unembossed} SDP
Aqua, Hemingray Blue

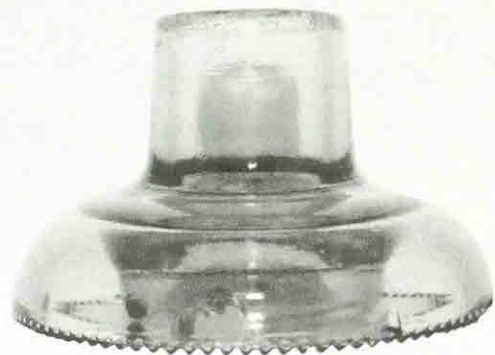
PYREX

(248 Top) (F-Skirt) CORNING PYREX REG. U.S. PAT.
OFF (R-Skirt) MADE IN U.S.A. {See CD311 for sleeve
embossing} SB
Clear, Straw

(Skirt) PYREX PAT. 5-27-19. MADE BY CORNING
GLASS WORKS, CORNING N.Y. U.S.A. {Embossed all
the way around the skirt} {See CD311 for sleeve emboss-
ing} SB
Clear, Straw, Yellow Tint



CD 248 and two CD 311 units



CD 311 Sleeve

The typical use of the CD 248 is with two CD 311 sleeves. A special long pin is used to accommodate the installation of the three pieces. The pin end contains a standard threading, over which are slipped the two sleeves and then the CD 248 is screwed onto the pin above the two sleeves.

The CD 311 sleeve contains a double petticoat and no threading on the hole through which the pin passes.

ACTUAL SIZE: 6 5/8" in height; 8 1/2" in width
Photo Size: 80% of Full Size



CD 249

CD 249/312

HEMINGRAY
(F-Skirt) HEMINGRAY (R-Skirt)
No 0, PROVO TYPE/PATENTED
APRIL 25 1899 {CD312 sleeve is
unembossed} SB
Aqua



CD 312 Sleeve
Used with CD 249



CD 250

CD 250

N.E.G.M.

(F-Skirt) N.E.G.M.CO. {Note no inner skirt} SB
Aqua



CD 250.2

CD 250.2

ERICSSON

(F-Skirt) TELEPHONOS ERICSSON-LD-1 SB
Green, Aqua, Celery Green



CD 251

CD 251

HEMINGRAY

(F-Skirt) HEMINGRAY-61 (R-Skirt) MADE IN U.S.A./
RDP
Ice Blue, Aqua, Clear

(F-Skirt) HEMINGRAY-61 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] CB
Ice Blue, Clear

(F-Skirt) HEMINGRAY-61 (R-Skirt) MADE IN U.S.A./
[Numbers and Dots] SB
Ice Blue, Aqua, Clear

(F-Skirt) HEMINGRAY-61/[Numbers and Dots] (R-
Skirt) MADE IN U.S.A./[Number] RDP
Clear

(F-Skirt) HEMINGRAY/N° 1 CABLE (R-Skirt) PAT-
ENTED/MAY 2 1893 SDP
Aqua, Light Aqua

(F-Skirt) MADE IN U.S.A./HEMINGRAY/N° 61 CABLE
(R-Skirt) PATENTED/MAY 2 1893 SDP
Aqua, Hemingray Blue

(F-Skirt) N° 61/HEMINGRAY/MADE IN U.S.A. (R-
Skirt) PATENTED/MAY 2 1893 SDP
Aqua, Hemingray Blue

LYNCHBURG

(F-Skirt) ['L' in an oval]/LYNCHBURG (R-Skirt)
[Number]/MADE IN NO.1 U.S.A. SDP
Light Aqua

(F-Skirt) ['L' in an oval]/LYNCHBURG/['N.E.G.M.CO.'
Blotted out] (R-Skirt) [Number]/MADE IN NO.1 U.S.A./
['PAT JUNE 17 1890' Blotted out] SDP
Light Aqua

N.E.G.M.

(F-Skirt) N.E.G.M.CO. SB
Aqua, Ice Blue, Sapphire Blue, Green

(F-Skirt) N.E.G.M.CO. (R-Skirt) "PAT JUNE 17 1890"
SB
Aqua, Green, Olive Green, Ice Blue, Dark Yellow Green,
Dark Blue, Light Aqua

CD 252

CABLE

(F-Skirt) NO.2 CABLE SB
Light Blue, Aqua, Dark Olive Amber, Ice Green, 7-up
Green, Dark Yellow Green, Light Aqua, Light Steel Blue,
Dark Aqua, Dark Green, Dark Olive Green, Peach, Light
Straw, Sage Green

E.S.S.

(F-Skirt) E.S.S.Co./[Blotted out Embossing] (R-Skirt) N°
401 SB
Aqua

GAYNER

(F-Skirt) GAYNER (R-Skirt) NO.620/[Number] SDP
Aqua

HEMINGRAY

(F-Skirt) HEMINGAY-62 {Note Spelling} (R-Skirt)
MADE IN U.S.A. RDP
Aqua, Hemingray Blue

(F-Skirt) HEMINGRAY-62 (R-Skirt) MADE IN U.S.A.
RDP
Aqua, Carnival, Ice Blue, Hemingray Blue

(F-Skirt) HEMINGRAY-62 (R-Skirt) MADE IN U.S.A./
[Number and Dots] CB
Green Tint, Clear, Carnival

(F-Skirt) HEMINGRAY-62 (R-Skirt) MADE IN
U.S.A./[Number and Dots] SB
Clear, Flashed Amber, Olive Amber

(F-Skirt) HEMINGRAY-62/LOWEX (R-Skirt)
MADE IN U.S.A./[Numbers and Dots] SB
Olive Amber, Flashed Amber

(F-Skirt) HEMINGRAY-62/LOWEX REG. U.S.
PAT. OFF (R-Skirt) MADE IN U.S.A./[Num-
bers and Dots] SB
Clear, Light Pink

(F-Skirt) HEMINGRAY-62/['LOWEX' Blotted
out] (R-Skirt) MADE IN U.S.A./[Number and
Dots] CB
Clear, Smoke

(F-Skirt) HEMINGRAY-62/['LOWEX' Blotted
out] (R-Skirt) MADE IN U.S.A./[Numbers and
Dots] SB
Clear



CD 252

CD 252 Variations

Both of the insulators at the right are embossed units which were distributed by the M & E Company (Mayer & Englund) of Philadelphia. The one (left) is the tall skirt version, while the one (right) is the narrow style.



(F-Skirt) HEMINGRAY-62/[Numbers and Dots] (R-Skirt) MADE IN U.S.A./[Number] SB
Ice Blue

(F-Skirt) HEMINGRAY-62/[Numbers and Dots] (R-Skirt) MADE IN U.S.A./[Number] RDP
Clear, Green Tint

(F-Skirt) HEMINGRAY/LOWEX (R-Skirt) MADE IN U.S.A. SB
Olive Amber

(F-Skirt) HEMINGRAY/N^o 2 CABLE (R-Skirt) PAT. MAY 2ND 1893 SDP
Aqua, Green

(F-Skirt) HEMINGRAY/N^o 2 CABLE (R-Skirt) ['KNOWLES CABLE' Blotted out]/PAT.MAY 2ND 1893 SDP
Aqua, Green, Blue Aqua, Dark Aqua

(F-Skirt) HEMINGRAY/N^o 2 CABLE/[Blotted out Embossing] (R-Skirt) PAT.MAY 2ND 1893 SDP
Aqua

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) MADE IN U.S.A./KNOWLES CABLE/PAT.MAY 2ND 1893 SDP
Dark Aqua

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) MADE IN U.S.A./PAT. MAY 2ND 1893/[Blotted out Embossing] SDP
Aqua, Ice Blue, Hemingray Blue

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) MADE IN U.S.A./PAT.MAY 2ND 1893 RDP
Ice Blue

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) MADE IN U.S.A./PAT.MAY 2ND 1893 SDP
Hemingray Blue

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) PAT. MAY 2ND 1893 SDP
Aqua

(F-Skirt) HEMINGRAY/N^o 62 CABLE (R-Skirt) PAT.MAY 2 1893 SDP
Aqua

(F-Skirt) HEMINGRAY/N^o 62 CABLE/['KNOWLES/CABLE INSULATOR' Blotted out] (R-Skirt) MADE IN U.S.A./PAT. MAY 2ND 1893 SDP
Aqua, Ice Blue, Blue

KNOWLES

(F-Skirt) KNOWLES CABLE/INSULATOR SB
Light Aqua, Aqua, Light Green

(F-Skirt) KNOWLES/NO.2 CABLE {Slug embossed} (R-Skirt) (Arc)PATENTED/[Prism]/JUNE.17. 1890 SB
Green, Aqua, Apple Green, Light Blue, Blue Aqua, Yellow Green, Dark Yellow Green, Yellow Olive

(F-Skirt) KNOWLES/NO.2 CABLE (R-Skirt) [Prism] SB
Aqua

LYNCHBURG

(F-Skirt) LYNCHBURG (R-Skirt) N^o 2 CABLE/MADE IN U.S.A. {'N' in 'IN' is backwards} SDP
Light Aqua

(F-Skirt) ['L' in an oval]/LYNCHBURG (R-Skirt) N^o 2 CABLE/MADE IN U.S.A. SDP
Aqua, Sage Green

(F-Skirt) ['L' in an oval]/LYNCHBURG (R-Skirt) N^o 2 CABLE/MADE IN U.S.A. {'N' in 'IN' is backwards} SDP
Aqua

(F-Skirt) ['L' in an oval]/LYNCHBURG {'N' is backwards} (R-Skirt) N° 2 CABLE/MADE IN U.S.A. {'N' in 'IN' is backwards} SDP
Aqua, Celery Green

(F-Skirt) ['L' in an oval]/LYNCHBURG/MADE IN U.S.A. (R-Skirt) N° 62 CABLE {Note N° 62} SDP
Aqua

(F-Skirt) [Backwards 'L' in an oval]/LYNCHBURG (R-Skirt) N° 2 CABLE/MADE IN U.S.A. {'S' is backwards} SDP
Aqua

M. & E.

(F-Skirt) M & E Co./PHILA {Slug Embossed} (R-Skirt) [Prism] SB
Dark Yellow Green, Green

(F-Skirt) THE M & E Co. (R-Skirt) N° 401 SB
Aqua, Light Green Aqua

(F-Skirt) THE/M & E Co./PHILADELPHIA (R-Skirt) KNOWLES CABLE/INSULATOR {Can be 1/2" taller than most 252's} SB
Aqua, Green

MAYDWELL

(F-Skirt) MAYDWELL-62 (R-Skirt) U.S.A. SDP
Light Purple, Light Green, Off Clear, Straw, Light Straw, Pink, Gingerale, Yellow Green Tint

CD 253

KNOWLES

(F-Skirt) KNOWLES CABLE/INSULATOR SB
Green, Blue, Light Aqua

(F-Skirt) KNOWLES CABLE/INSULATOR/ "PATENTED JUNE 17. 1890" SB
Aqua, Yellow Green, Blue, Green, Green Aqua

(F-Skirt) MAYDWELL-62/['M^cLAUGHLIN' Blotted out] (R-Skirt) U.S.A. RDP
Light Blue, Yellow Green

M^cLAUGHLIN

(F-Skirt) M^cLAUGHLIN-62 RDP
Light Green, Emerald Green

(F-Skirt) M^cLAUGHLIN-62 SDP
Sage Green, Delft Blue, Pink, Steel Blue, Ice Green, Aqua, Light Blue

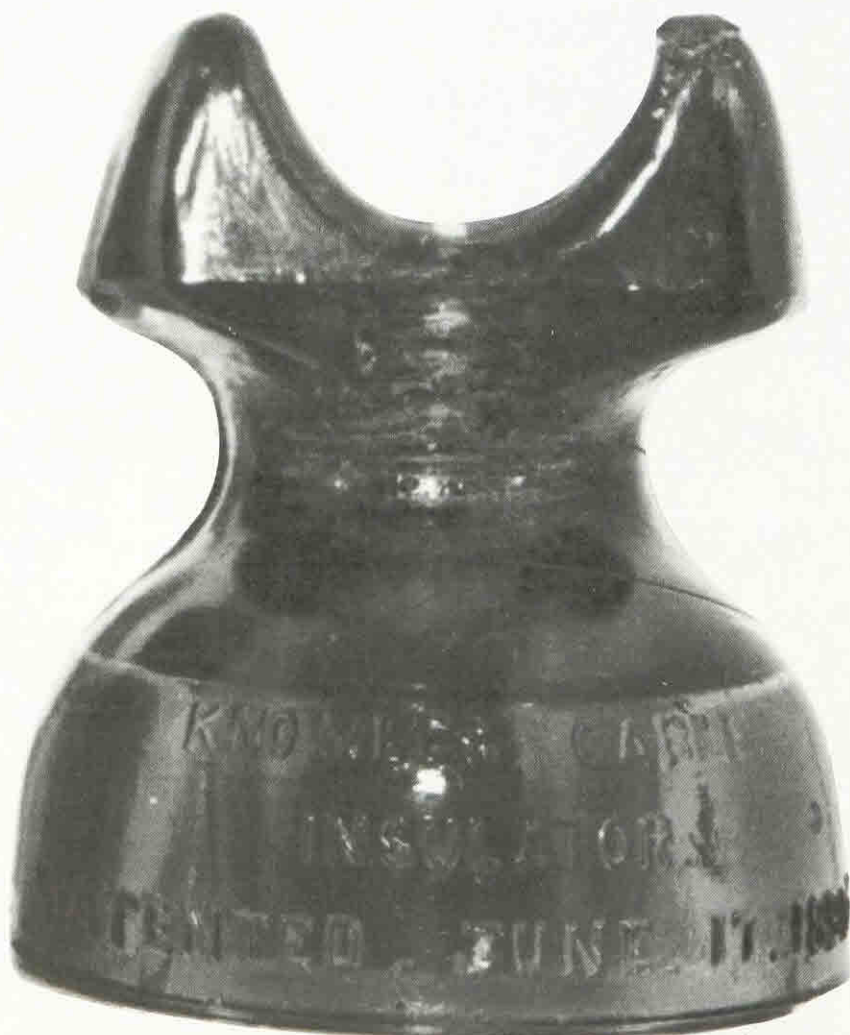
NO NAME

[No Embossing] {Knowles Style} SB
Brooke's Blue

PRISM

(F-Skirt) [Prism] SB
Aqua

(F-Skirt) [Prism] (R-Skirt) NO.2 SB
Blue Aqua, Ice Blue, Green, Light Green Aqua, Aqua



CD 253



CD 254

CABLE

(F-Skirt) NO.3 CABLE SB
Aqua, Light Blue Aqua, Dark Green

(F-Skirt) NO.3 CABLE/[Blotted out Embossing] SB
Emerald Green

HEMINGRAY

(F-Skirt) HEMINGRAY (R-Skirt) N° 3 CABLE SB
Aqua, Green, Dark Aqua

(F-Skirt) HEMINGRAY (R-Skirt) N° 3 CABLE SDP
Aqua, Blue, Dark Aqua

(F-Skirt) HEMINGRAY-63 (R-Skirt) MADE IN U.S.A.
SB
Clear, Ice Aqua, Ice Blue

CD 254

(F-Skirt) HEMINGRAY-63 (R-Skirt) MADE IN U.S.A.
SDP
Ice Blue, Aqua

(F-Skirt) HEMINGRAY-63/[Number] (R-Skirt) MADE
IN U.S.A./[Number] SB
Off Clear, Clear

(F-Skirt) HEMINGRAY/MADE IN U.S.A. (R-Skirt) N°
63 CABLE SDP
Hemingray Blue

M.& E.

(F-Skirt) THE M & E Co. (R-Skirt) N° 58 SB
Aqua, Blue Aqua, Light Aqua



CD 256 Variations

The "MANHATTAN" embossed insulators were manufactured in a short, squat size (left) and the normal size (right).



CD 256

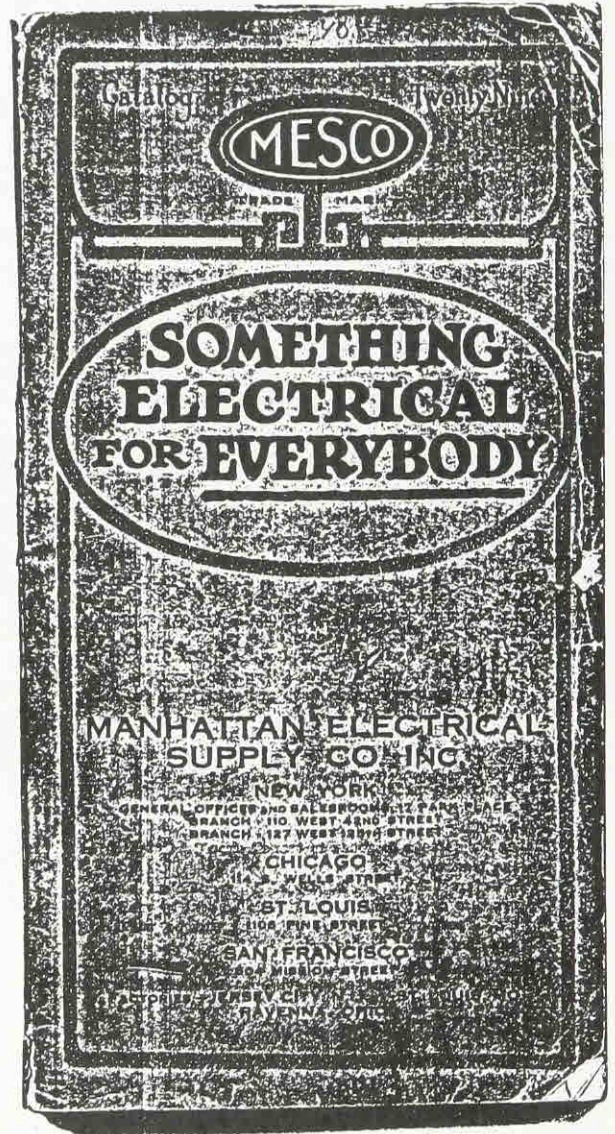
CD 256

MANHATTAN

(F-Skirt) MANHATTAN SB
Aqua, Blue

(F-Skirt) MANHATTAN (R-Skirt) "PAT-
ENTED JUNE 17 1890" SB
Aqua, Light Aqua, Blue, Green, Yellow Green,
Olive Green

(F-Skirt) MANHATTAN (R-Skirt) PAT-
ENTED JUNE 17 1890 SB
Aqua, Green Aqua, Blue, Ice Blue, Light Green



MESCO Catalog Twenty-Nine

Headquarters of Manhattan Electrical Supply Co., Inc. were New York City, with offices in Chicago, St. Louis, and San Francisco. Factories were listed as Jersey City, N.J., St. Louis, MO., and Ravenna, Ohio. (Courtesy Kevin Lawless)



CD 257

CD 257

HEMINGRAY

(F-Skirt) HEMINGRAY (R-Skirt) MADE IN U.S.A./N° 60 SDP
Hemingray Blue

(F-Skirt) HEMINGRAY (R-Skirt) N° 60 SDP
Light Green, Aqua, Emerald Green, Green Aqua

(F-Skirt) HEMINGRAY (R-Skirt) PATENT/JUNE 17 1890 MAY 2 1893 SDP
Aqua, Electric Blue, Emerald Green, Light Electric Blue, Jade Blue Milk, Jade Aqua Milk, Light Aqua

(F-Skirt) HEMINGRAY (R-Skirt) PATENT/JUNE 17 1890 MAY 2 1893 {Wide Groove} SDP
Emerald Green, Green, Aqua, Light Aqua, Blue Aqua, Forest Green

(F-Skirt) HEMINGRAY (R-Skirt) PATENT/JUNE 17 1893 MAY 2 1893 {Note 'June 1893' Date} {Wide Groove} SDP
Emerald Green, Green, Aqua



CD 257 Variation

The CD 257 "Mickey Mouse" with a flat, wide wire groove.

(F-Skirt) HEMINGRAY-60 (R-Skirt) MADE IN U.S.A. RDP

Aqua, Ice Blue, Hemingray Blue, Carnival (Altered)

(F-Skirt) HEMINGRAY-60 (R-Skirt) MADE IN U.S.A. SDP

Aqua, Blue

(F-Skirt) HEMINGRAY-60 (R-Skirt) MADE IN U.S.A. {Wide Groove} RDP

Clear, Ice Blue, Straw, Aqua, Hemingray Blue, Carnival (Altered)

(F-Skirt) HEMINGRAY-60/[Numbers and Dots] (R-Skirt) MADE IN U.S.A./[Number] RDP

Clear, Light Straw, Aqua, Carnival, Ice Blue, Off Clear

(F-Skirt) HEMINGRAY-63 {Note '63'} (R-Skirt) MADE IN U.S.A. {Wide Groove} RDP

Hemingray Blue, Clear, Aqua

(F-Skirt) HEMINGRAY/N° 60-A (R-Skirt) MADE IN U.S.A./JUNE 17 1890 MAY 2 1893 SDP

Aqua

(F-Skirt) HEMINGRAY/N° 60-A (R-Skirt) MADE IN U.S.A./JUNE 17 1890 MAY 2 1893 {Wide Groove} SDP
Hemingray Blue

(F-Skirt) HEMINGRAY/N° 63-A {Note '63'} (R-Skirt) MADE IN U.S.A./JUNE 17 1890 MAY 2 1893 {Wide Groove} SDP
Hemingray Blue

(F-Skirt) HEMINGRAY/[Number and Dots] (R-Skirt) MADE IN U.S.A./N° 60/[Number] RDP
Clear, Aqua

(F-Skirt) MADE IN U.S.A./HEMINGRAY/N° 60-A (R-Skirt) PATENT/JUNE 17 1890 MAY 2 1893 {Wide Groove} SDP
Hemingray Blue

(F-Skirt) MADE IN U.S.A./HEMINGRAY/N° 60-A (R-Skirt) PATENT/JUNE 17 1893 MAY 2 1893 {Note 'June 1893' Date} {Wide Groove} SDP
Hemingray Blue

(F-Skirt) N° 60-A/HEMINGRAY (R-Skirt) MADE IN U.S.A./['PATENT' Blotted out]/JUNE 17 1893 MAY 2 1893 {Note: 'June 1893' Date Error} SDP
Aqua

NO NAME

(F-Skirt) PATENT/JUNE 17 1890 (R-Skirt) PATENT/MAY 2 1893 SDP
Aqua, Light Aqua, Green, Ice Blue, Clear, Blue, Ice Green

(F-Skirt) PATENT/JUNE 17 1890 (R-Skirt) PATENT/MAY 2 1893 {Wide Groove} SDP
Light Aqua, Aqua



CD 258

CD 258

CABLE

(F-Skirt) CABLE SDP
Dark Aqua

(F-Skirt) CABLE {Comes with and without threading on the Inside of the Outer Skirt} SB
Emerald Green, Aqua, Dark Aqua



CD 259

CABLE

(F-Skirt) CABLE {Inside of Outer Skirt is Threaded} SB

Aqua, Green, Emerald Green, Light Blue

(F-Skirt) CABLE {Inside of Outer Skirt is Threaded} SDP

Dark Aqua, Green

NO NAME

(Base) PAT'D JUNE 17, 1890, AUG. 19, 1890

Light Blue

OAKMAN

(F-Skirt) CABLE (Base) OAKMAN M'F'G. CO. BOSTON/PAT'D JUNE 17, 1890, AUG. 19, 1890.

{Inside of Outer Skirt is Threaded}

Aqua, Light Blue, Light Aqua

CD 259



CD 260

CABLE

(F-Skirt) CABLE

SB

Aqua



CD 260 Variations

Pictured are two "CALIFORNIA" cables. The one on the left has the wide wire groove, while the unit on the right has the narrower "pinch ear" groove.

CD 260

CALIFORNIA

(F-Skirt) CALIFORNIA SB
Green, Sage Green, Smoke, Purple, Peach, Yellow

(F-Skirt) CALIFORNIA (Pinch Eared) SB
Aqua, Green

HAWLEY

(F-Skirt) ['HICo' Entwined Initials] (R-Skirt) HAWLEY,
PA./U.S.A. SB
Aqua

STAR

(F-Skirt) [Star] SB
Blue Aqua, Green Aqua

(F-Skirt) [Star] (R-Skirt) "PATENTED JUNE. 17. 1890"
SB
Light Blue, Light Green, Green, Snowy Green, Light
Aqua, Yellow Green, Aqua, Lime Green



CD 262

CD 262

COLUMBIA

(F-Skirt) N° 2 COLUMBIA (R-Skirt)
PAT'D MAY 12TH 1891 SB
Aqua, Green, Dark Aqua

The design of the **CD 262**, **CD 263**, and **CD 264** cables are covered in **Samuel Oakman's patent of May 12, 1891**. (See New England Manufacturers -- The Influence of Samuel Oakman chapter)



CD 263

CD 263

COLUMBIA

(F-Skirt) COLUMBIA SB
Light Aqua

(F-Skirt) COLUMBIA {Inside of Outer Skirt is Threaded} SB
Light Aqua

(F-Skirt) PAT'D MAY 12 1891/COLUMBIA SB
Dark Aqua, Blue, Yellow Green, Green

(F-Skirt) PAT'D MAY 12 1891/COLUMBIA {Inside of Outer Skirt is Threaded} SB
Dark Aqua, Light Blue, Green Aqua

(F-Skirt) PAT'D MAY 12 1891/COLUMBIA {Wide Ear} {Inside of Outer Skirt is Threaded} SB
Aqua, Dark Aqua

(F-Skirt) PAT'D MAY 12TH 1891/COLUMBIA {Inside of Outer Skirt is Threaded} SB
Aqua

HEMINGRAY

(F-Skirt) HEMINGRAY (R-Skirt) PAT'D. MAY 12 1891 SDP
Aqua

(F-Skirt) HEMINGRAY (R-Skirt) PAT'D. MAY 12 1891/COLUMBIA SB
Aqua, Hemingray Blue, Light Green, Green

(F-Skirt) HEMINGRAY (R-Skirt) PAT'D. MAY 12 1891/COLUMBIA SDP
Aqua, Hemingray Blue

NO NAME

(F-Skirt) "PATENTED.JUNE. 17. 1890" SB
Blue Aqua, Yellow Green, Light Blue

OAKMAN

(F-Skirt) COLUMBIA (Base) PAT.JUNE 17, 1890. AUG. 19, 1890. MAY 12, 1891./OAKMAN M'F'G CO. BOSTON {Inside of Outer Skirt is Threaded}
Light Aqua, Light Blue



CD 264

CD 264

COLUMBIA
(F-Skirt) COLUMBIA SB
Light Aqua, Light Blue



CD 265



CD 265

FISHER

(F-Skirt) FISHER/
 (Arc)ELECTRIC RAILWAY
 SYSTEM/BUILT BY/DETROIT
 ELECTRICAL/WORKS SB
 Aqua, Lime Green, Ice Blue,
 Yellow Green

NO NAME

[No Embossing] SB
 Light Green

In the mid-1880's, **Frank E. Fisher**, manager of the **Detroit Electrical Works** of Detroit, Michigan, developed an electric railway system. Detroit civic leaders dreamed of matching similar railway systems which were in operation in New York City and London. Lack of public interest and financing modified the size of the railway to a three mile stretch called the Highland Railway Company. The line would serve excursions along the Conner Creek to Lake St. Clair in Highland Park, Michigan.

OUR SYSTEM is the ONLY System,

-- BECAUSE --


**THERE IS NO SYSTEM USING TWO MOTORS
 TO DO THE WORK OF ONE.**

.....

WE INVITE INVESTIGATION.

.....

Multipolar Generators.
 Street Railway Motors.



DETROIT ELECTRICAL WORKS,
 DETROIT, MICH.

NEW YORK, 38 Cortlandt Street.
 LOUISVILLE, The Omohara.
 CHATTANOOGA, 285 First Street.
 CHICAGO, Massman Building.
 CINCINNATI, 27th Building.

A Street Railway Gazette ad for the
 Detroit Electrical Works
 (Courtesy of James Doty)

The system used a "third-rail" power source which was buried below the level of the street. The rail was supported by a flat-top glass insulator (CD 265). For every twenty feet of track, one Fisher insulator was installed on a wooden, threaded pin and the rail secured along the flat notch on the top of the insulator.

In 1886 St. Louis, Missouri, had a small experimental line in operation, but the largest installation occurred on an electric railway line to be built from San Jose to Santa Clara, California. Construction of the line commenced in October of 1887. Operation of the system began in July, 1888. Due to both electrical and mechanical problems, the line ceased functioning by the fall of 1888.

A **No Name CD 265** (at the right) has also been located. Although it is similar in style to the embossed Fisher insulator, it has a rounded cable top instead of a flat, third rail style. All of the embossed units are molded in vintage aqua and green glass colors. The unembossed pieces are all a light green color. Most would agree that the insulator was probably not manufactured for use on Fisher Electric Railway construction. At least



CD 265 Variation

one of these styles was removed from a factory in the Detroit area, and several others were traced to a Detroit area auction where a box of unused specimens were offered for sale.



CD 266

NO NAME
(F-Skirt)
"PATENTED. JUNE. 17.
1890" SB
Dark Aqua, Aqua

CD 266



CD 267

CD 267

CABLE

(F-Skirt) No.4 CABLE SB
Aqua, Green, Emerald Green

N.E.G.M.

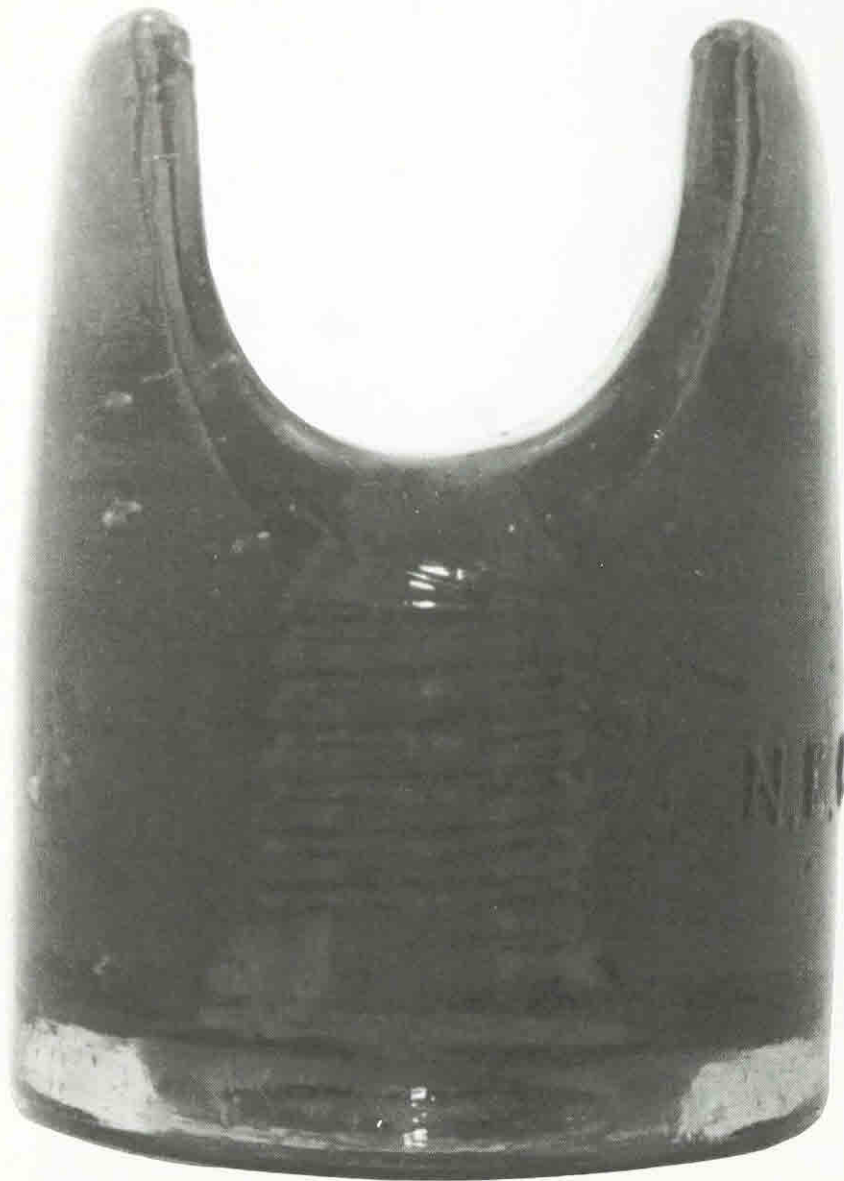
(F-Skirt) N.E.G.M. SB
Aqua

(F-Skirt) N.E.G.M.CO. (R-Skirt)

“PATENTED JUNE.17. 1890” SB
Aqua, Blue, Green, Light Green

NO NAME

[No Embossing] SB
Aqua, Light Blue



CD 267.5

CD 267.5

N.E.G.M.

(F-Skirt) N.E.G.M.CO. SB
Blue Aqua, Green, Light Green,
Emerald Green, Blue



CD 268

CD 268

CROWN

(F-Skirt) THE CROWN/PAT ALLOWED SB
Dark Aqua, Aqua

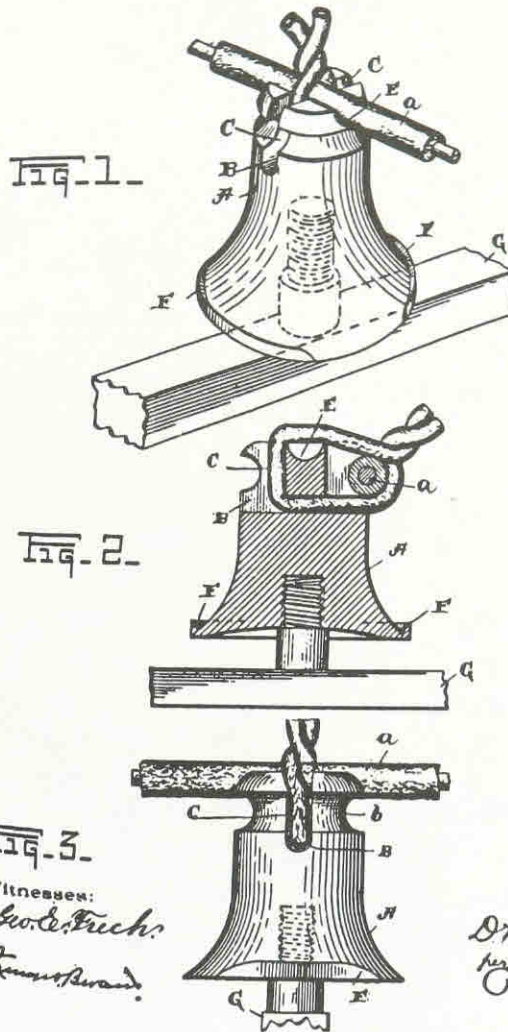
"THE CROWN" insulator did have a "PAT ALLOWED" on September 3, 1895. The patentee was **Daniel M. Rothenberger** of Lancaster, Pennsylvania, who assigned two-thirds to **Charles A. Inglis** and **Edward D. Reilly** also of Lancaster.

"One object of my invention is to provide an insulator with vertical side grooves terminating in a transverse ligament, which ligament is approximately the same thickness as the diameter of the main wire, and a transverse opening communicating with the vertical grooves or slots and beneath the said ligament, whereby the tie-wire can be passed beneath the ligament and turned upward at each side of the main wire

D. M. ROTHENBERGER.
ELECTRIC INSULATOR.

No. 545,819.

Patented Sept. 3, 1895.



Witnesses:
Swote, Frick
James, Burand

Inventor.
D. M. Rothenberger
per
Patison, Dreditt
Attorneys.

and form a part of the groove in which the main wire is placed, whereby the main wire is securely clamped against slipping after it is once drawn.

Another object of my invention is to provide an insulator with a top groove to receive the main wire, with a circumferential groove beneath the said top groove, and a ligament or web around which a tie-wire is passed, the under opening forming the bottom of the ligament being beneath the circumferential groove, whereby the tie-wire may be used to secure a main wire either in the top groove or in the circumferential groove when it is desired to pass the wire around a corner or to make a curve therein."



CD 268.5

CD 268.5

STANDARD GLASS

(F-Skirt) PATENTED/AUG. 8, 1893 (Base) THE
STANDARD GLASS INSULATOR CO./BOSTON
MASS

Aqua



CD 269

JUMBO

(F-Skirt) JUMBO SB
Aqua, Dark Aqua, Green

(F-Skirt) JUMBO (R-Skirt) ['BROOKFIELD' Blotted
out] SB
Aqua

CD 269

OAKMAN

(F-Skirt) JUMBO (R-Skirt) PAT'D JUNE 17, 1890, AUG
19, 1890 (Base) OAKMAN M'F'G. CO. BOSTON
Light Aqua, Green



CD 270

CD 270

NO NAME
[No Embossing] SB
Aqua, Green



CD 272

CD 272

ARMSTRONG
(F-Skirt) *Armstrong's* 511A (R-Skirt) MADE
IN U.S.A. ['A' in a circle] [Numbers] CB
Root Beer Amber

(F-Skirt) *Armstrong's* 511A (R-Skirt) MADE
IN U.S.A. ['A' in a circle] [Numbers] SB
Root Beer Amber

NO NAME
[No Embossing] SB
Aqua

WHITALL TATUM
(F-Skirt) WHITALL TATUM CO. NO. 511A/
[Number] (R-Skirt) MADE IN U.S.A. ['W/T'
in a triangle]/[Number] SB
Root Beer Amber

(F-Skirt) WHITALL TATUM CO. N° 62/
[Number] (R-Skirt) MADE IN U.S.A. SB
Root Beer Amber

(F-Skirt) WHITALL TATUM NO. 511A/
[Number] (R-Skirt) MADE IN U.S.A. SB
Root Beer Amber

(F-Skirt) WHITALL TATUM NO. 511A/
[Number] (R-Skirt) MADE IN U.S.A. ['W/T'
in a triangle] SB
Clear, Smoke, Straw, Root Beer Amber, Light
Green



CD 273

NO NAME
[No Embossing] SB
Dark Aqua

CD 273



CD 275

LOCKE
(F-Skirt) F.M.LOCKE VICTOR
N.Y. (R-Skirt) N° 21 SB
Green Aqua, Aqua

(F-Skirt) LOCKE VICTOR N.Y. (R-
Skirt) N° 21 SB
Aqua, Dark Aqua, Green

NO NAME
(F-Skirt) N° 21 SB
Emerald Green, Green

CD 275



CD 280

CD 280

HEMINGRAY

(F-Skirt) HEMINGRAY/PATENT
MAY 2 1893 (R-Skirt) HIGH
VOLTAGE/TRIPLE PETTICOAT/
N° 1 SDP

Aqua, Green Aqua, Ice Aqua, Light
Aqua, Blue Aqua

NO NAME

(F-Skirt) N° 135 SB
Green, Emerald Green

PRISM

(F-Skirt) [Prism] SB
Aqua, Yellow Green, Green



CD 281

CD 281

HEMINGRAY

(F-Skirt) HEMINGRAY-71 (R-
Skirt) MADE IN U.S.A. RDP
Carnival, Dark Aqua, Aqua,
Hemingray Blue

(F-Skirt) HEMINGRAY-71 (R-
Skirt) MADE IN U.S.A. SDP
Hemingray Blue

(F-Skirt) HEMINGRAY/N° 1
HIGH VOLTAGE (R-Skirt)
PATENT MAY 2 1893 SDP
Green Aqua, Dark Aqua, Hemin-
gray Blue

(F-Skirt) HEMINGRAY/N° 1
HIGH VOLTAGE (R-Skirt)
PATENTED MAY 2 1893 SDP
Aqua

(F-Skirt) HEMINGRAY/N° 2 HIGH VOLTAGE (R-Skirt)
PATENT MAY 2 1893 SDP
Aqua, Blue

(F-Skirt) HEMINGRAY/N° 71 HIGH VOLTAGE (R-
Skirt) PATENT MAY 2 1893/MADE IN U.S.A. RDP
Hemingray Blue

(F-Skirt) HEMINGRAY/N° 71 HIGH VOLTAGE (R-
Skirt) PATENTED MAY 2 1893/MADE IN U.S.A. SDP
Aqua, Hemingray Blue, Ice Blue

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt)
HIGH VOLTAGE/TRIPLE PETTICOAT/N° 1 SDP
Green

LYNCHBURG

(Dome) NO. 180 (F-Skirt) ['L' in an oval]/LYN-
CHBURG (R-Skirt) MADE IN U.S.A. SDP
Aqua, Green



CD 282 Variation
*The KNOWLES 5 1/2
unit has a flat dome style*

CD 282

CD 282

HEMINGRAY

(F-Skirt) HEMINGRAY/N° 2 "PROVO" TYPE (R-Skirt)
PATENT MAY 2 1893 SDP
Light Aqua

(F-Skirt) HEMINGRAY/N° 2 PROVO TYPE (R-Skirt)
PATENT MAY 2 1893 SDP
Aqua, Light Hemingray Blue

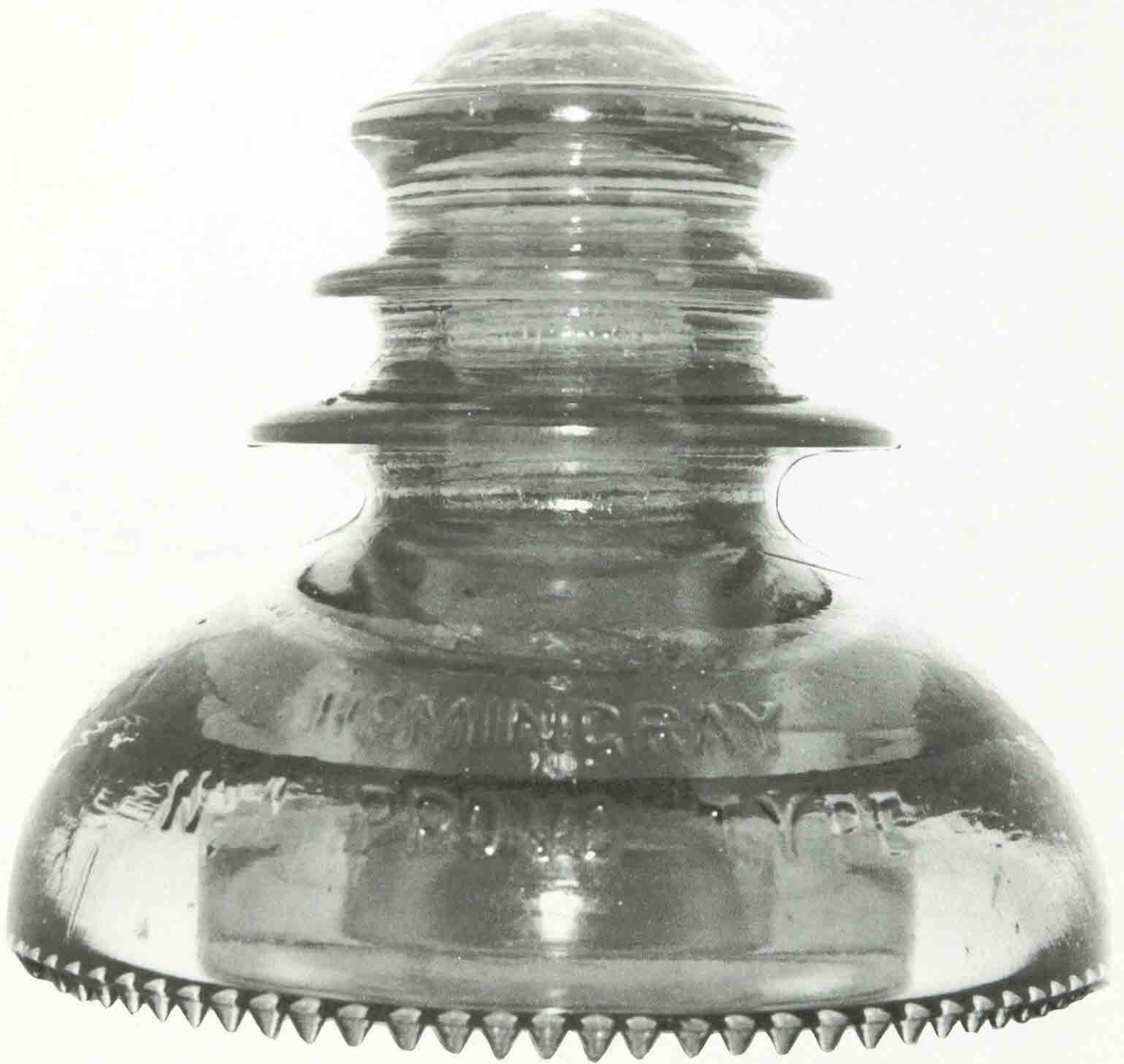
(F-Skirt) HEMINGRAY/N° 2 PROVO TYPE (R-Skirt)
PATENT MAY 2 1893/PATENTED APRIL 25 1899
SDP
Aqua, Dark Aqua, Hemingray Blue

KNOWLES

(F-Skirt) KNOWLES 5 1/2 (R-Skirt) BOSTON SB
Aqua

PRISM

(F-Skirt) [Prism] SB
Aqua, Blue Aqua, Lime Green



CD 283

CONVERSE

(F-Skirt) V.G. CONVERSE/"PROVO" TYPE (R-Skirt)
 PATENT MAY 2 1893 SDP
 Aqua, Light Aqua, Hemingray Blue

HEMINGRAY

(F-Skirt) HEMINGRAY/Nº 1 "PROVO" TYPE (R-Skirt)
 PATENT MAY 2 1893 SDP
 Aqua, Green

(F-Skirt) HEMINGRAY/Nº 1 "PROVO" TYPE (R-Skirt)
 PATENTED APRIL 25 1899/PATENT MAY 2 1893
 RDP
 Dark Aqua

CD 283

(F-Skirt) HEMINGRAY/Nº 1 "PROVO" TYPE (R-Skirt)
 PATENTED APRIL 25 1899/PATENT MAY 2 1893
 SDP
 Hemingray Blue

(F-Skirt) HEMINGRAY/Nº 1 "PROVO" TYPE (R-Skirt)
 PATENTED MAY 2 1893 SDP
 Hemingray Blue

PRISM

(F-Skirt) [Prism] SB
 Blue, Aqua, Lime Green



CD 284

CD 284

FLOY

(F-Skirt) FLOY {Base has V-shaped
notches} SB

Lime Green, Aqua, Light Blue

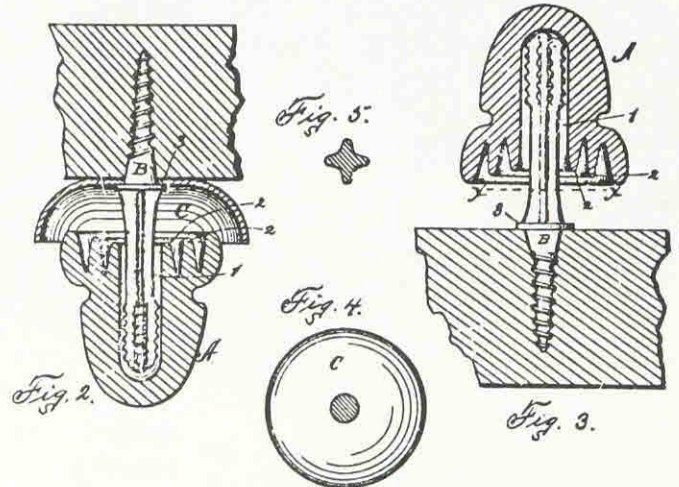
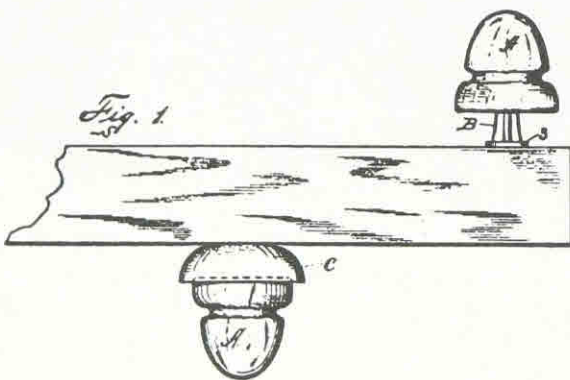


CD 285

NO NAME

[No Embossing] SB
Yellow Green, Aqua

CD 285



The purpose of **Fred M. Locke's** October 11, 1892 patent was to "produce a more perfect insulator not affected by storms of rain or sleet, in which the shank is more securely fastened in the insulating-cap and its metallic contact therewith is reduced to a minimum, in which the insulating cap is provided with skirts to prevent the flow of electricity from the wire over the wet exterior of the cap onto the shank, and in which when the insulator is pendent from a crossarm a cover is provided to protect the skirts and keep them dry."

CD 285 has often been referred to as "The Edison" and has a porcelain counterpart with the same shape. The insulator may have been a standard item distributed by electrical supply houses. It's ability to be installed above or below the crossarm doubled its installation options.

Little is known about the cap used to cover the petticoats of the insulator when installed below the crossarm. The patent called for its installation to the pin by pouring wax or melted sulphur around the opening in the cap.



CD 286

CD 286

LOCKE

(F-Skirt) F.M. LOCKE VICTOR N.Y. (R-Skirt) PAT. MAY
22 94/ “ NOV. 24 96/ “DEC. 15 96/ “ SEPT. 28 97/ “ JUNE
7 98 SB

Aqua, Light Green, Light Blue



CD 286.9

CD 286.9

WESTINGHOUSE

(F-Skirt) WESTINGHOUSE ELECTRIC & M'F'G CO./PITTSBURG, PA.

(R-Skirt) "TELLURIDE" TYPE C. SB

Aqua



CD 287

CD 287

LOCKE

(Dome) [Number] (F-Skirt) F.M. LACKE VICTOR N.Y./
PAT'D MAY 22 1894 {Note Spelling} (R-Skirt) N° 15
SB
Light Aqua

(Dome) [Number] (F-Skirt) F.M. LOCKE VICTOR N.Y.
(R-Skirt) N° 15 SB
Aqua, Emerald Green

(Dome) [Number] (F-Skirt) F.M. LOCKE VICTOR N.Y./
PAT'D MAY 22 1894 (R-Skirt) N° 15 SB
Aqua, Light Aqua

(Dome) [Number] (F-Skirt) F.M. LOCKE VICTOR N.Y./
['PAT'D MAY 22 1894' Blotted out] (R-Skirt) N° 15 SB
Aqua

(Dome) [Number] (F-Skirt) F.M. LOCKE VICTOR N.Y./
[Blotted out Embossing] (R-Skirt) N° 15 SB
Aqua

(F-Skirt) F.M. LOCKE & CO. VICTOR N.Y./PAT'D
MAY 22 1894 SB
Aqua, Blue, Green, Ice Blue

(F-Skirt) F.M. LOCKE VICTOR N.Y. (R-Skirt) N° 15
SB
Aqua

(F-Skirt) F.M. LOCKE VICTOR N.Y./PAT'D. MAY 22
1894 SB
Light Aqua

(F-Skirt) LOCKE VICTOR N.Y. (R-Skirt) N° 15 SB
Aqua, Dark Green

(F-Skirt) ['F.M. LOCKE VICTOR N.Y.' Blotted out]/
PAT'D MAY 22 1894 (R-Skirt) N° 15 SB
Emerald Green

NO NAME

(Dome) [Number] (F-Skirt) N° 15 SB
Aqua, Green

(Dome) [Number] (F-Skirt) [Blotted out Embossing] (R-
Skirt) N° 15 SB
Aqua, Olive Green

(F-Skirt) N° 135 SB
Aqua, Green



CD 287.1

LOCKE

(F-Skirt) F.M. LOCKE & Co VICTOR.
N.Y./PATD MAY 22 1894 SB
Light Aqua, Red Amber, Peacock Blue

(F-Skirt) F.M. LOCKE ['& Co' Blotted
out] VICTOR. N.Y./PATD MAY 22 1894
SB
Light Aqua

CD 287.1



CD 287.2

BROOKFIELD

(F-Crown) (Arc)W. BROOKFIELD/NEW
YORK. (F-Skirt) LOCKE PATENTS
PENDING. SB
Aqua, Light Aqua

CD 287.2



CD 288

CD 288

LOCKE

(F-Umbrella/Above ridge) (Arc)FRED M. LOCKE
 VICTOR N.Y. (R-Umbrella/Above ridge) PAT. MAY
 22-94/' NOV. 24-96 (R-Umbrella/Below ridge) SEPT.
 28-97/&JUNE 7-98 SB
 Aqua

(F-Umbrella/Above ridge) (Arc)LOCKE VICTOR N.Y.
 (F-Umbrella/Below ridge) N° 18 SB
 Aqua

MERSHON

(F-Umbrella) By R.D.MERSHON {Three ridges} SB
 Aqua



CD 288 Variation
Three-ridge Mershon

CD 288 Variation
No Name with no ridges



(F-Umbrella/Below ridge) PAT'D/By R.D. MERSHON
 {One ridge} SB
 Light Green, Light Aqua

(F-Umbrella/Below ridge) R.D.MERSHON {One ridge}
 SB
 Aqua

NO NAME

[No Embossing] SB
 Aqua, Light Aqua, Ice Green, Light Blue



CD 289

CD 289

LOCKE

(F-Skirt) FRED M. LOCKE VICTOR N.Y. SB
Aqua

(F-Skirt) FRED M. LOCKE VICTOR N.Y. (R-Skirt)
PAT. MAY 22 1894 SB
Aqua, Green

(F-Skirt) FRED. M. LOCKE VICTOR N.Y. (R-Skirt)
[Blotted out Embossing] SB
Aqua, Dark Aqua

NO NAME

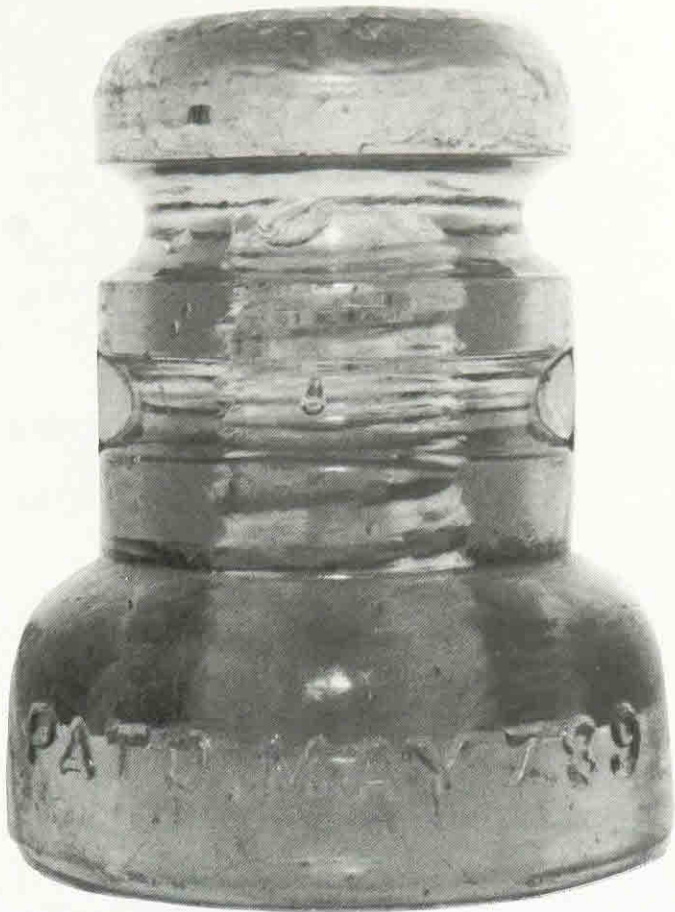
[No Embossing] SB
Aqua, Dark Aqua

CD 289.9

NO NAME

(F-Skirt) PATD. MAY 7. 89 SB

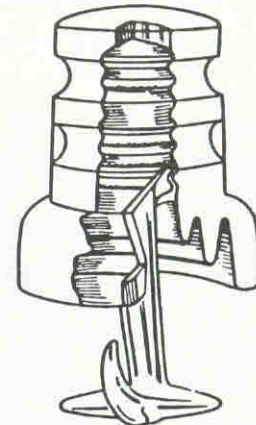
Aqua



CD 289.9

SHEET No. 261.

THE E.S. GREELEY & CO. (SUCCESSORS TO L.G. FELLOTTSON & CO.) NEW YORK



Insulator drawn 47% of actual size.

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. 44261 Price each, \$0.10

In ordering, do not fail to mention the Cat. No. of each article wanted.

In an article for *Antique Bottle World* in November, 1978, Paul Mohrs (editor of the Ohio Valley Insulator Club newsletter) shared the following information:

"Fred M. Locke had a personal stake in developing this insulator. Locke had been employed by the N.Y.C.R.R. as a telegrapher and was fired for sleeping on duty. Locke proclaimed that he had not been asleep, that poorly insulated lines were at fault. He asserted that every time a thick fog or rain appeared there were problems on the lines, but Fred was blamed for sleeping on the job. Locke then made it his business to remedy the insulation problems.

The lines had a knack of grounding out at the small cylindrical Western Union insulators when the current would follow the path of moisture to the cross-arm and eventually the pole, which was a skip and a splinter to the soil.

Also, insulators detached themselves from the pin and the pin and insulator would both pop into the air away from the crossarm.

The resulting patent was Locke's first venture into the insulation industry."

Fred M. Locke of Victor, New York, and **John Lapp** of Honeoye Falls, New York, were granted a patent on May 7, 1889. It provided for a design that would prevent the popping off of the insulator. The unit was to be mounted on the underside of the crossarm and held in place by two dowel shafts going through the crossarm and locking the insulator in place. The uppermost groove on the insulator body received the dowel. Locke also specified that there should be three petticoats to provide for a longer mechanical distance. A suspended hook into which the line wire would be placed was secured into the pinhole of the insulator by using melted sulphur.

Mohrs adds the following comment: " This insulator was basically perfect for everything that Locke intended it for (i.e. to battle the moisture problems). The only real design drawback was the hook. It was antiquated to a degree that it was probably considered a joke by those perusing the catalog for electrically perfect insulators."

There is only one known specimen of the **CD 289.9** Locke-Lapp patent.



CD 291

CD 291

HEMINGRAY

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 SDP

Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt) HIGH VOLTAGE N° 1/ TRIPLE PETTICOAT SDP

Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt) HIGH VOLTAGE N° 3/TRIPLE PETTICOAT SDP

Aqua

NO NAME

(F-Skirt) N° 5 SB

Aqua

(F-Skirt) N° 5 SDP

Aqua

CD 292

NO NAME

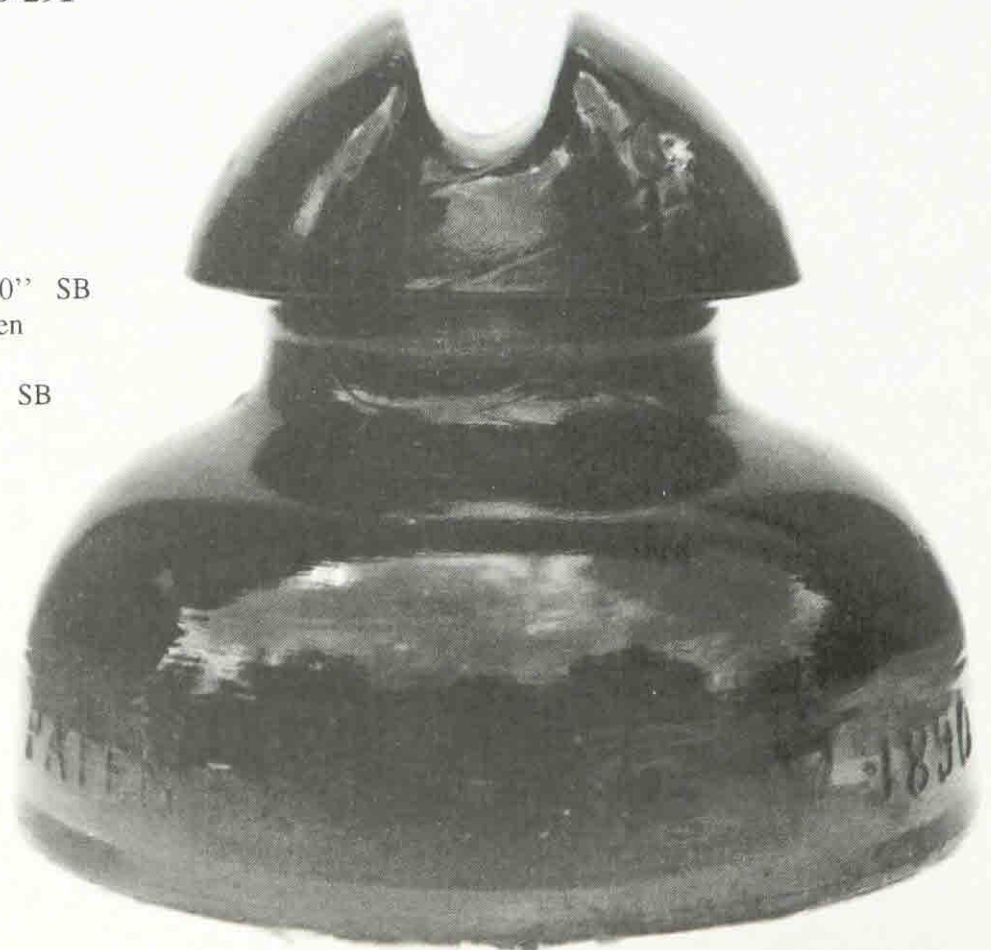
(F-Skirt) "PATENTED.JUNE. 17, 1890" SB
Emerald Green, Aqua, Light Blue, Green

(F-Skirt) PATENTED.JUNE. 17, 1890 SB
Green, Dark Yellow Green

[No Embossing] SB
Aqua

PRISM

(F-Skirt) [Prism] SB
Aqua, Green



CD 292



CD 292.5

CD 292.5

KNOWLES

(F-Skirt) BOSTON (R-Skirt) "KNOWLES 6" SB

Dark Green, Blue, Aqua

(F-Skirt) KNOWLES-6 (R-Skirt) BOSTON/PATENTED JUNE 17, 1890 SB

Aqua

(F-Skirt) [Prism]/"KNOWLES 6"/"PATENTED. JUNE. 17. 1890" (R-Skirt)

BOSTON SB

Light Aqua, Blue



CD 293

CD 293

LOCKE

(F-Skirt) FRED M. LOCKE VICTOR N.Y./PATD MAY 22-94 NOV.24-96 DEC.15-96 -
SEPT.28-97 (R-Skirt) OTHER PAT'S PENDING SB
Aqua, Light Blue

(F-Skirt) FRED M. LOCKE VICTOR N.Y./PAT'D MAY 22-94 NOV.24-96 DEC.15-96
(R-Skirt) SEPT.28-97 OTHER PAT'S PENDING SB
Aqua, Light Green, Blue Aqua, Light Purple, Light Gray Purple



CD 293.1

CD 293.1

LOCKE

(F-Skirt) FRED M LOCKE VICTOR N.Y./PAT'D. MAY
22-94 NOV. 24-96 DEC. 15-96 SEPT. 28-97 (R-Skirt)

OTHER PAT'S PENDING SB

Light Aqua, Light Green, Blue Aqua



CD 294

N.E.G.M.
(F-Skirt) N.E.G.M.CO. (R-Skirt)
TRIPLE PETTICOAT SB
Aqua, Light Blue

CD 294



CD 295

HEMINGRAY
(F-Skirt) HEMINGRAY-72 (R-Skirt)
MADE IN U.S.A. RDP
Aqua, Ice Blue

(F-Skirt) HEMINGRAY-72 (R-Skirt)
MADE IN U.S.A./[Number] SB
Clear, Aqua

CD 295

(F-Skirt) HEMINGRAY-72.A (R-Skirt) MADE IN U.S.A. RDP
Aqua

(F-Skirt) HEMINGRAY-72.A/[Number] (R-Skirt) MADE IN U.S.A. RDP
Ice Aqua

(F-Skirt) HEMINGRAY-72.A/[Numbers and Dots] (R-Skirt) MADE IN U.S.A./[Number] RDP
Clear

(F-Skirt) HEMINGRAY/PATENTED MAY 2 1893 (R-Skirt) HIGH VOLTAGE/TRIPLE PETTICOAT/Nº 4 SDP
Aqua, Hemingray Blue

(F-Skirt) HEMINGRAY/PATENTED MAY 2 1893 (R-Skirt) HIGH VOLTAGE/TRIPLE PETTICOAT/Nº 72 SDP
Aqua, Blue Aqua, Hemingray Blue

(F-Skirt) HEMINGRAY/PATENTED MAY 2 1893 (R-Skirt) HIGH VOLTAGE/TRIPLE PETTICOAT/Nº 72/ ['4' Blotted out] SDP
Blue Aqua



CD 296

CD 296

LOCKE

(F-Skirt) LOCKE VICTOR N.Y. SB
Aqua

(F-Skirt) LOCKE VICTOR N.Y. (R-Skirt) Nº 20 SB
Aqua, Dark Green, Emerald Green

(F-Skirt) ['F.M.' Blotted out] LOCKE VICTOR N.Y. (R-Skirt) Nº 20 SB
Green, Emerald Green

NO NAME

(F-Skirt) Nº 20 SB
Aqua, Green

PRISM

(F-Skirt) [Prism] SB
Aqua



CD 297

CD 297

LOCKE

(F-Skirt) F.M. LOCKE VICTOR N.Y./[Blotted out Embossing] (R-Skirt) N° 16 SB
Dark Aqua

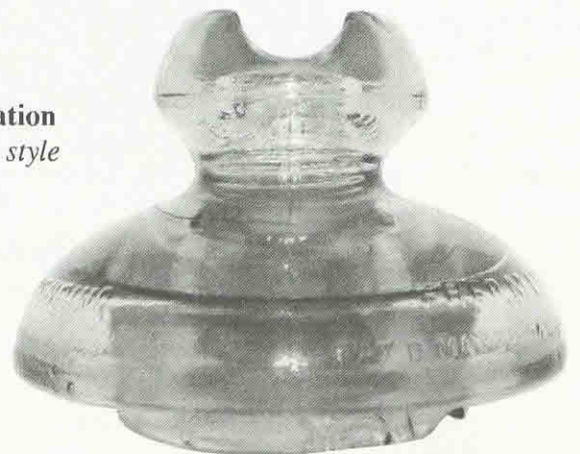
(F-Skirt) FRED M. LOCKE VICTOR N.Y. (R-Skirt) N° 16/OTHER PATENTS PENDING SB
Aqua, Light Aqua

(F-Skirt) FRED M. LOCKE VICTOR N.Y. (R-Skirt) N° 16/[Blotted out Embossing] SB
Aqua, Light Green, Emerald Green

(F-Skirt) FRED M. LOCKE VICTOR N.Y./PAT'D MAY 22-94 NOV.24-96 DEC.15-98 SEPT.28-97 (R-Skirt) OTHER PAT'S PENDING {Narrow Neck} SB
Light Aqua, Light Blue, Light Green

(F-Skirt) FRED M. LOCKE VICTOR N.Y./[Blotted out Embossing] (R-Skirt) N° 16 SB
Green Aqua

CD 297 Variation
Narrow neck style



(F-Skirt) FRED. M. LOCKE VICTOR N.Y. (R-Skirt) N° 16 SB
Aqua, Green, Dark Aqua

NO NAME

(F-Skirt) N° 16/[Blotted out Embossing] (R-Skirt) [Blotted out Embossing] SB
Green, Dark Green, Dark Aqua, Dark Yellow Green, Aqua

[No Embossing] SB
Dark Aqua



CD 298

CD 298

NO NAME

[No Embossing] SB

Aqua, Blue, Light Aqua, Ice Aqua



CD 299

BROOKFIELD
(F-Skirt) BROOKFIELD SB
Dark Aqua

(Top of Ear) BROOKFIELD SB
Dark Aqua, Emerald Green

CD 299



CD 299.1

PRISM
(F-Skirt) [Prism] (R-Skirt) 4 1/2 SB
Light Aqua

CD 299.1



CD 299.2

CD 299.2

NO NAME

[No Embossing] {Fry Glass} SB
White Opalescent, Black Opalescent



CD 300

BROOKFIELD

(F-Skirt) BROOKFIELD (R-Skirt) [Blotted out Embossing] SB

Aqua

(F-Skirt) No.17/BROOKFIELD SB

Aqua, Green

(F-Skirt) No.17/BROOKFIELD (R-Skirt) [Blotted out Embossing] SB

Green

(F-Skirt) ['No.17' Blotted out]/BROOKFIELD (R-Skirt) [Blotted out Embossing] SB

Dark Aqua

LOCKE

(F-Skirt) F.M. LOCKE VICTOR N.Y. (R-Skirt) No.17 SB

Aqua

CD 300

(F-Skirt) F.M. LOCKE VICTOR N.Y. (R-Skirt) PAT.MAY 22,94/ " SEPT.28,97/ " JUNE 7,98 SB
Olive Green

(F-Skirt) F.M. LOCKE VICTOR N.Y. PAT.MAY 22,94/ " NOV.24 96/ " DEC.15 96/ " SEPT 28 97/ " JUNE 7 98 SB

Aqua, Olive Green

(F-Skirt) No.17/F.M.LOCKE VICTOR N.Y. (R-Skirt) PAT.MAY 22 96/ " NOV. 24 96/ " DEC. 15 96/ " SEPT. 28 97/ " JUNE 7 98 SB

Aqua

(F-Skirt) No.17/F.M. LOCKE VICTOR N.Y. (R-Skirt) PAT'D MAY 22,94 MAY 24,96/ " SEPT.28,97 SB
Aqua

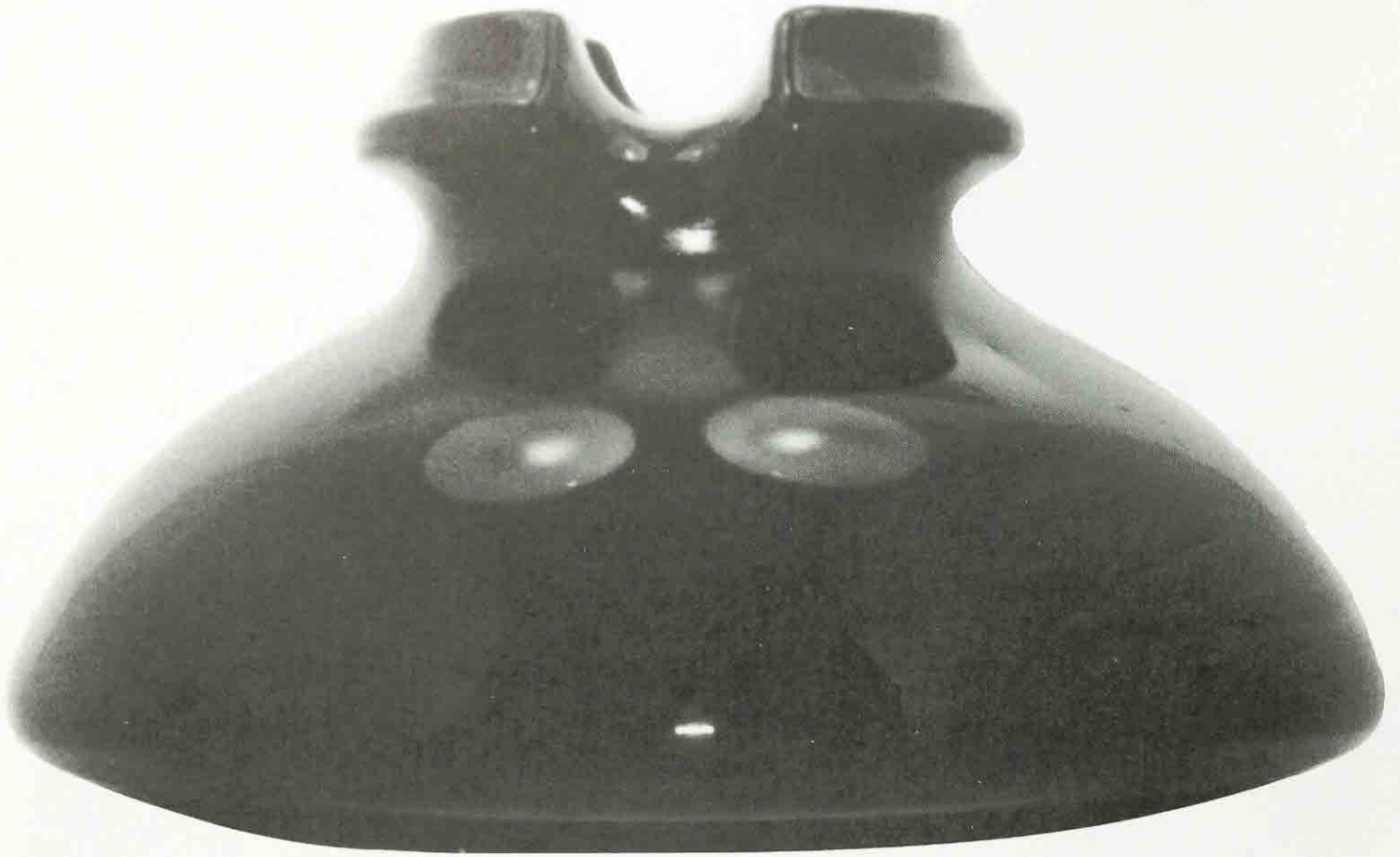
(F-Skirt) No.17/F.M. LOCKE VICTOR N.Y. (R-Skirt) PATENT/[Blotted out Embossing] SB
Aqua, Green, Dark Green



CD 301

CD 301

NO NAME
[No Embossing] SB
Ice Blue, Aqua



CD 301.2

CD 301.2

NO NAME

[No Embossing] {Fry Glass} SB
Black Opalescent, White Opalescent



CD 301.5

CD 301.5

HEMINGRAY

(F-Skirt) HEMINGRAY-515 (R-Skirt) MADE IN U.S.A./

[Number and Dots] SB

Clear, Honey Amber



CD 302

CD 302

HEMINGRAY

(F-Skirt) HEMINGRAY-75/PATENT MAY 2 1893 (R-Skirt) MUNCIE RDP

Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt) MADE IN U.S.A./MUNCIE TYPE/N° 75 RDP

Aqua, Hemingray Blue

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt) MUNCIE TYPE RDP

Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2ND 1893 RDP

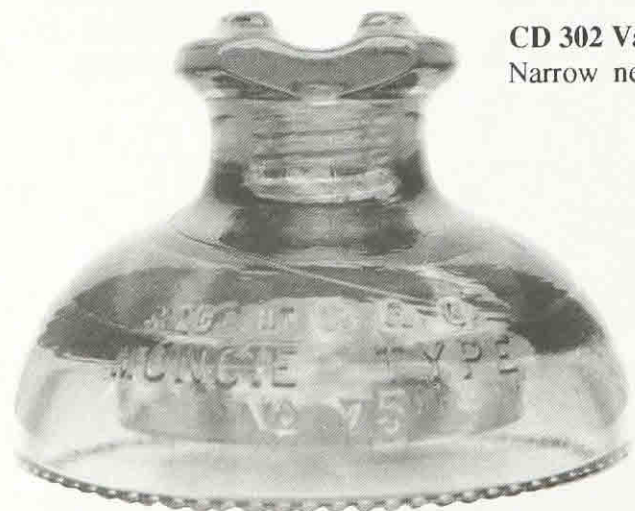
Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2ND 1893 (R-Skirt) MUNCIE TYPE RDP

Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2ND 1893 (R-Skirt) OHIO RDP

Aqua



CD 302 Variation
Narrow neck style

ACTUAL SIZE: 12 1/4" in height; 9" in width
Photo Size: 55% of Full Size



CD 303/310

CD 303

HEMINGRAY

(F-Skirt) HEMINGRAY 76/PATENT MAY 2ND 1893
(R-Skirt) MUNCIE {CD310 sleeve is unembossed} SDP
Aqua

(F-Skirt) HEMINGRAY/PATENT MAY 2ND 1893 (R-
Skirt) MUNCIE TYPE {CD310 sleeve is unembossed}
RDP

Aqua, Hemingray Blue, Green

(F-Skirt) HEMINGRAY/PATENT MAY 2ND 1893 (R-
Skirt) MUNCIE TYPE/Nº 76 {CD310 sleeve is unembos-
sed} RDP
Aqua



CD 310

NO NAME

[No Embossing] SB

ACTUAL SIZE: 7 7/8" in height; 8" in width
Photo Size: 70% of Full Size



CD 303.5

CD 303.5

HEMINGRAY

(F-Skirt) HEMINGRAY/N° 4 "PROVO" TYPE (R-Skirt)

PATENT MAY 2 1893 SDP

Aqua

ACTUAL SIZE: 11 5/8" in height; 9" in width
Photo Size: 55% of Full Size



CD 304/310

(The sleeve used with CD 304 is the CD 310, which is pictured with CD 303)

CD 304

HEMINGRAY

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 {CD310 sleeve is unembossed} SDP
Aqua, Green, Hemingray Blue

(F-Skirt) HEMINGRAY/PATENTED MAY 2 1893 {CD310 sleeve is unembossed} SDP
Aqua

(F-Skirt) [Blotted out Embossing]/HEMINGRAY/PATENTED MAY 2 1893 {CD310 sleeve is unembossed} SDP
Aqua



CD 306

CD 306

LYNCHBURG

(Top of ear) NO.181 (F-Skirt) ['L' in an oval]/LYNCHBURG
(R-Skirt) MADE IN U.S.A. RDP
Aqua

(Top of ear) NO.181 (F-Skirt) ['L' in an oval]/LYNCHBURG
(R-Skirt) MADE IN U.S.A. SDP
Aqua



CD 307

CD 307

HEMINGRAY

(F-Skirt) HEMINGRAY/PATENT MAY 2 1893 (R-Skirt)
HIGH POTENTIAL/TRIPLE PETTICOAT CABLE SDP
Aqua



CD 308

CD 308

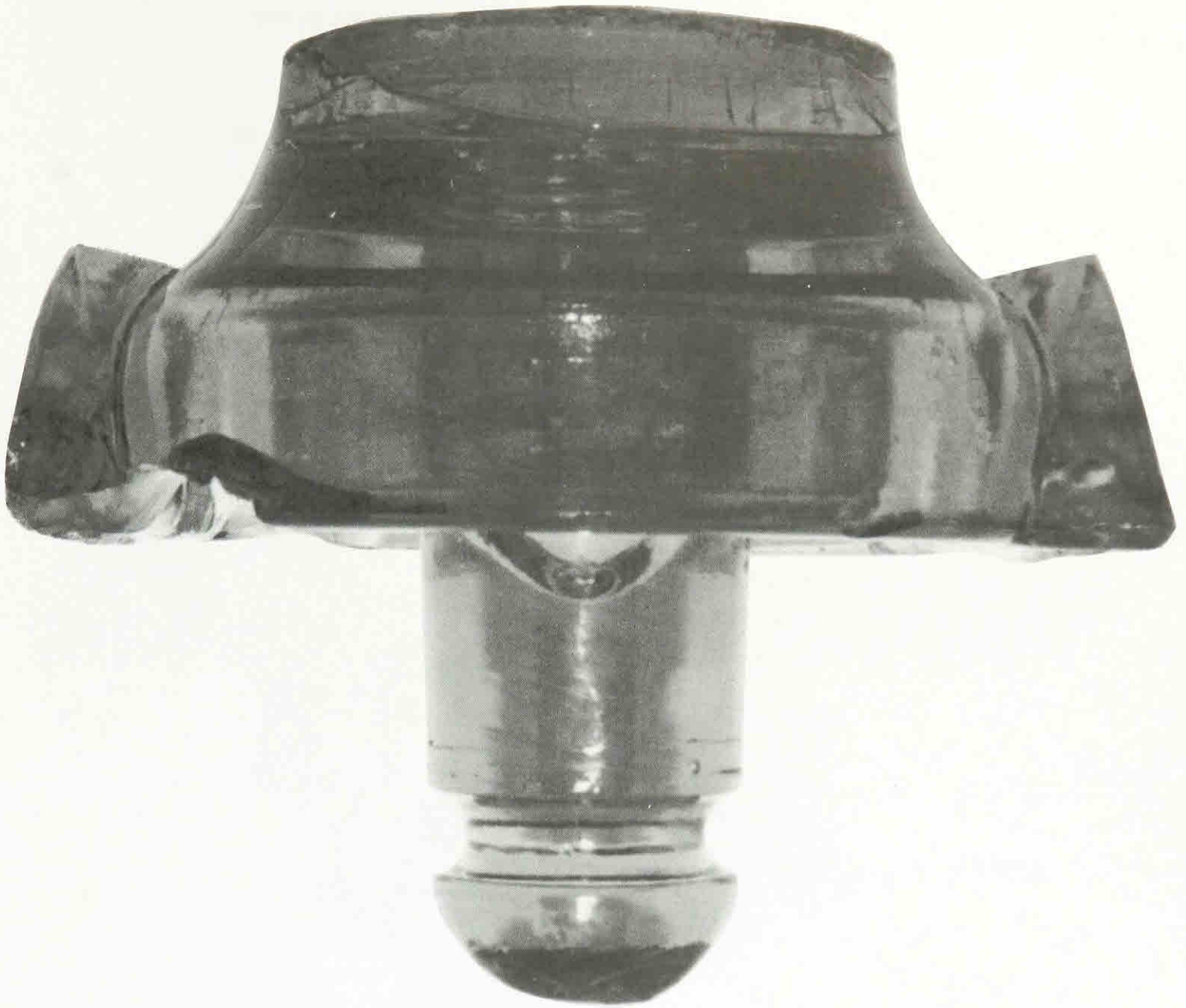
NO NAME

(F-Skirt) N° 100 SB

Light Aqua, Green, Lime Green, Light Green Aqua, Light Blue

[No Embossing] SB

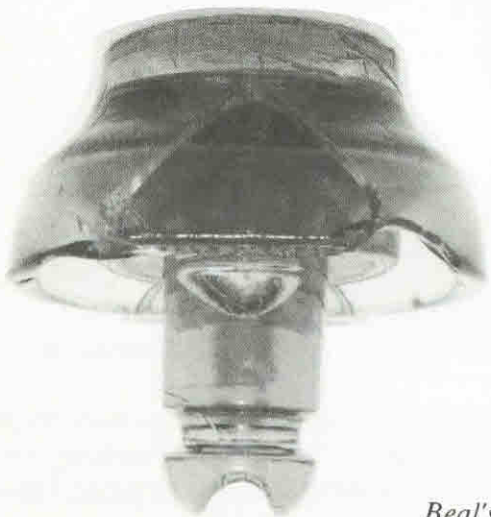
Light Aqua, Light Blue, Light Apple Green



CD 309

CD 309

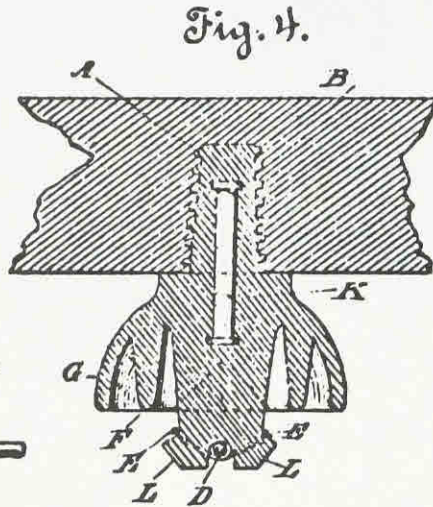
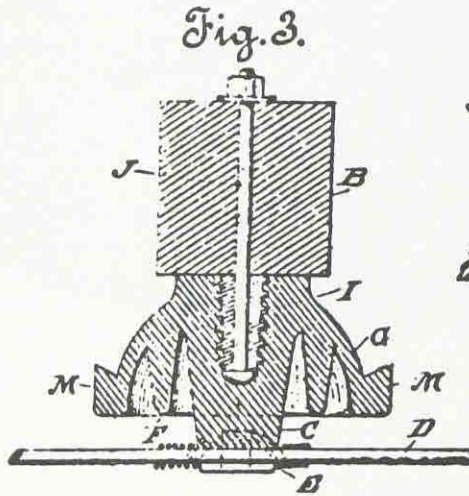
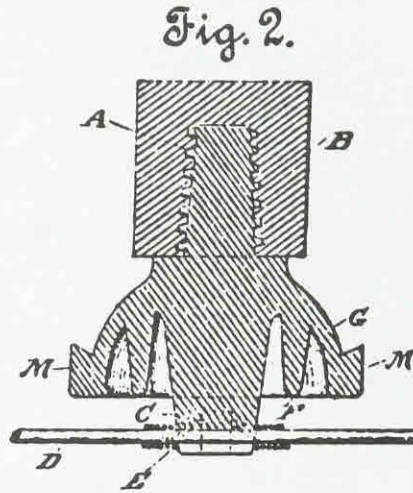
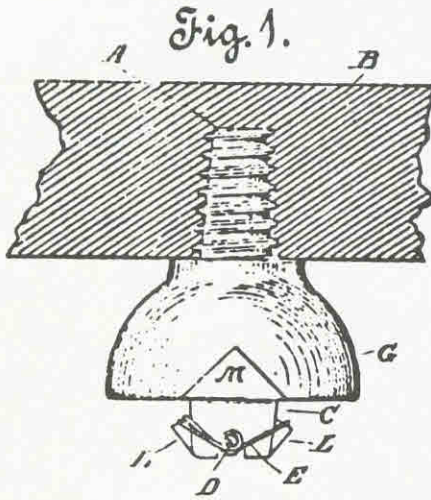
BEAL'S
(Top/Left Ear) BEAL'S HIGH TENSION/
INSULATOR (Top/Right Ear) PATENTED
OCT. 10 1899 SB
Aqua



Side View
Beal's High Tension Insulator

C. N. BEAL.
INSULATED SUPPORT FOR ELECTRIC WIRES.

(Application filed Nov. 17, 1897.)



Witnesses.

W. H. L. Overholt
W. Anderson

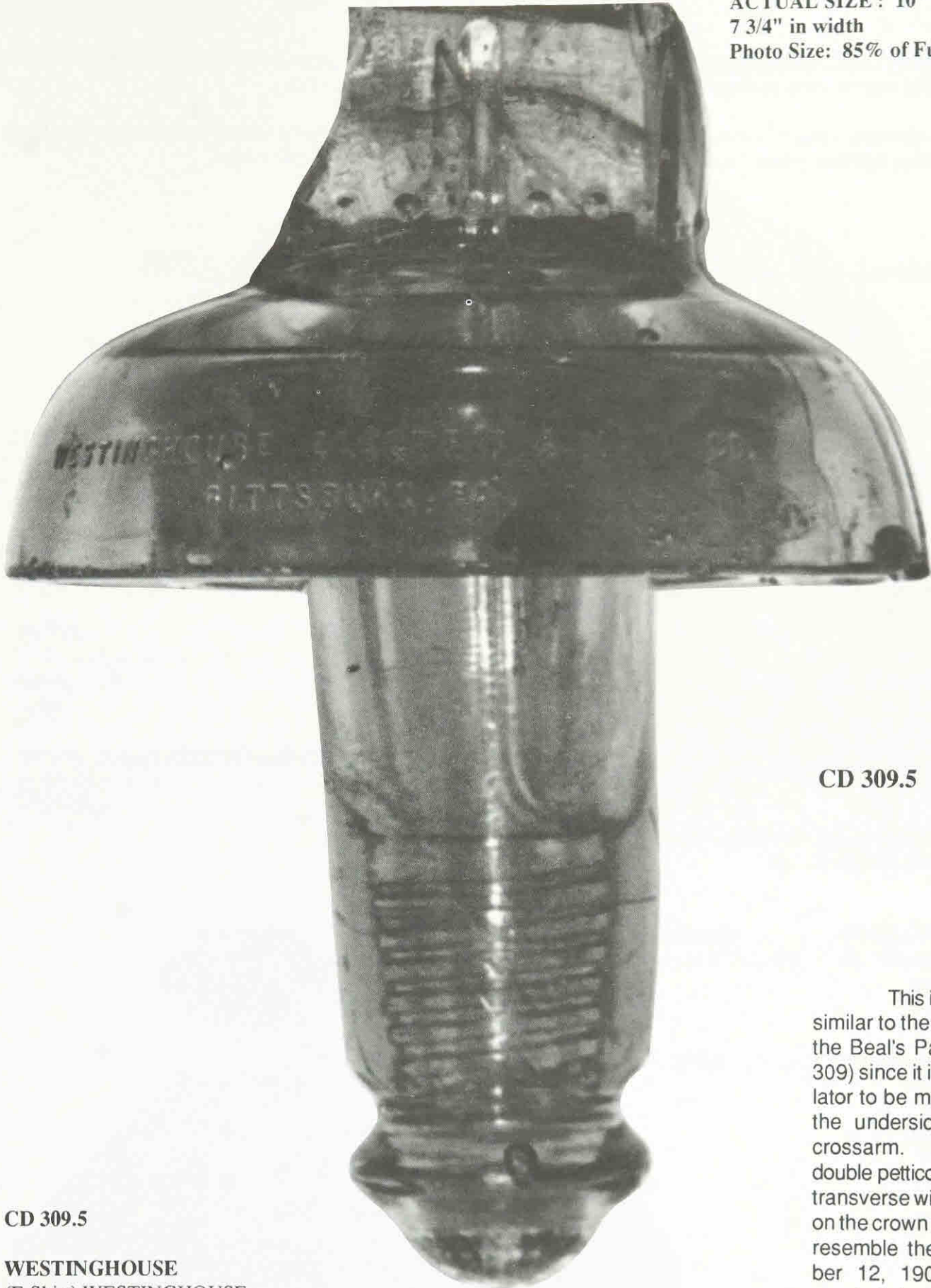
Inventor.

Carroll N. Beal
By J. Richards & Co.
Attys

Carroll N. Beal of San Francisco, California, was issued a patent on October 10, 1899. The insulator covered in the patent, CD 309, was designed to be mounted below the crossarm which would protect the conducting surface of the insulator from rain and snow. The design also had two triangular-shaped flanges on each side of the insulator body which paralleled the line

wire forcing water to be shed outward and away from the line wire. The flanges served as "umbrellas" for the line wire.

Although the Beal's patent drawing shows several types of installation, CD 309 has a pinhole with standard threading and would be mounted as pictured in Figure 3. in the drawing.



ACTUAL SIZE : 10" in height;
7 3/4" in width
Photo Size: 85% of Full Size

CD 309.5

CD 309.5

WESTINGHOUSE
(F-Skirt) WESTINGHOUSE
ELECTRIC & M'F'G CO./
PITTSBURG, PA. (R-Skirt)
"TELLURIDE" TYPE B. SB
Aqua

This insulator is similar to the design of the Beal's Patent (CD 309) since it is an insulator to be mounted to the underside of the crossarm. It has a double petticoat and no transverse wire groove on the crown or it might resemble the November 12, 1901 patent granted to Ralph G. Hemingray. (See Gray and Hemingray Revisited chapter for patent information)

INSULATOR SLEEVES

CD 310 through CD 314 are insulator sleeves and have been pictured and listed with their companion insulator that precede or follow this portion of the Consolidated Design Numbering System.

In order to list these special pieces in sequence, the following information regarding the insulators with which they were installed appears here. Please refer to the related CD style for pictures and details.

CD 310 (used with both CD 303 and CD 304)

NO NAME

[No Embossing] SB

Aqua, Hemingray Blue, Green

CD 311 (used with CD 248)

NO NAME

[No Embossing] SB

Clear, Amber, Yellow Tint

[No Embossing] RDP

Aqua, Hemingray Blue

[No Embossing] SDP

Aqua, Hemingray Blue

PYREX

(F-Skirt) CORNING PYREX REG. U.S. PAT.OFF. (R-Skirt) MADE IN U.S.A. SB

Clear

(F-Skirt) PYREX PAT. 5-27-19. MADE BY CORNING GLASS WORKS, CORNING N.Y. U.S.A. SB

Clear, Straw

CD 312 (used with CD 249)

NO NAME

[No Embossing] SB

Aqua

CD 313 (used with CD 317.8)

HEMINGRAY

(F-Skirt) "SECTION 2" (R-Skirt) HEMINGRAY

PATENT MAY 2 1893 SDP

Aqua

(F-Skirt) HEMINGRAY (R-Skirt) PATENT MAY 2 1893

SDP

Aqua

CD 313.1 (used with CD 317.8)

NO NAME

[No Embossing] SB

Aqua

CD 314 (used with CD 317.7)

NO NAME

[No Embossing] SB

Aqua



CD 315

CD 315

PRISM

(F-Umbrella) (Arc)REGISTERED TRADE MARK/
[Prism] SB
Blue

(F-Umbrella) (Arc)REGISTERED TRADE MARK/
[Prism] (R-Umbrella) PATENTED JUNE 17 1890 SB
Blue Aqua

(F-Umbrella) [Prism] SB
Aqua, Blue

(F-Umbrella) [Prism] (R-Umbrella) (Arc)PATENTED/
JUNE 17, 1890 SB
Light Aqua



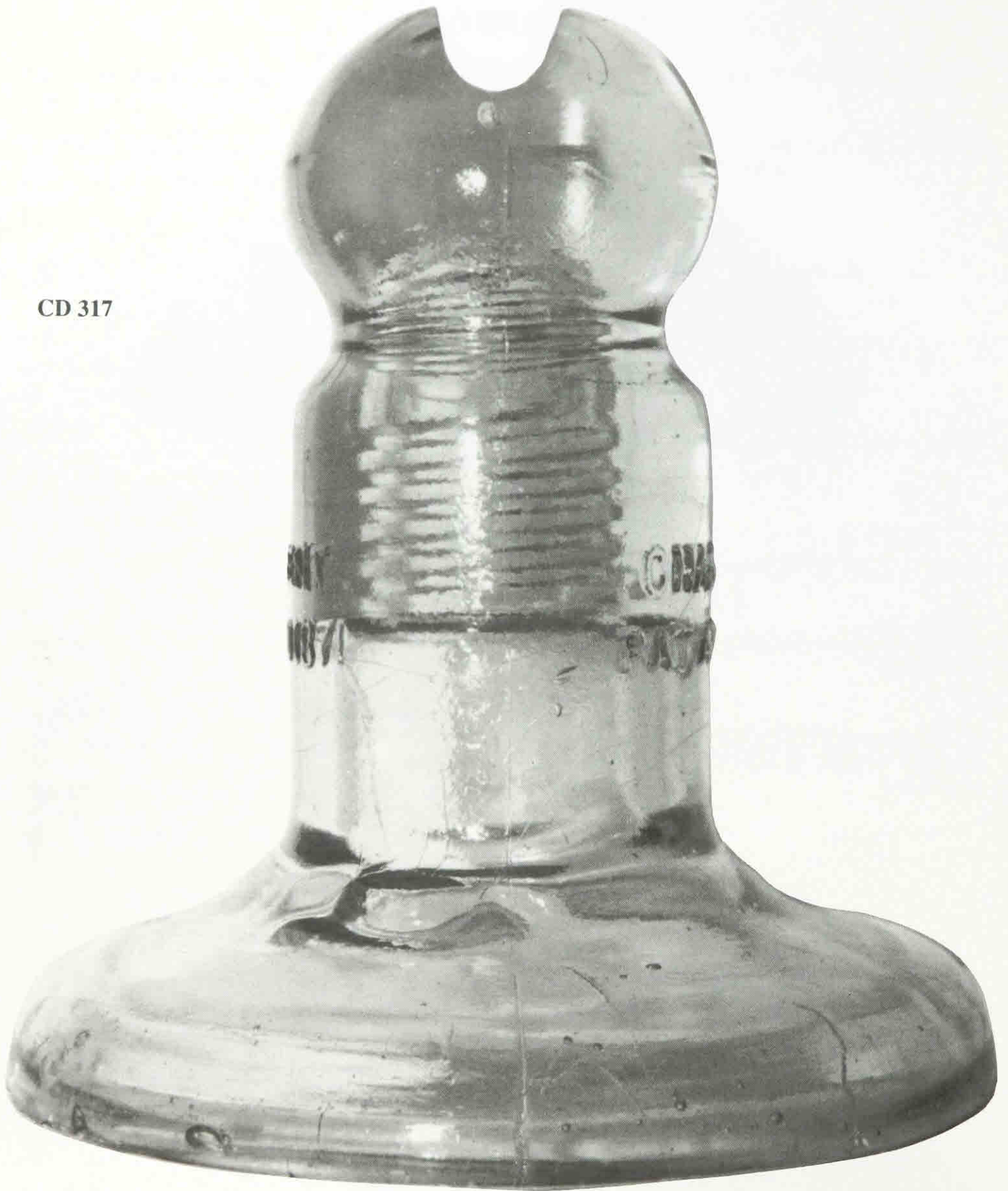
CD 316

CD 316

BROOKFIELD

(F-Umbrella) BROOKFIELD SB
Aqua, Green

CD 317



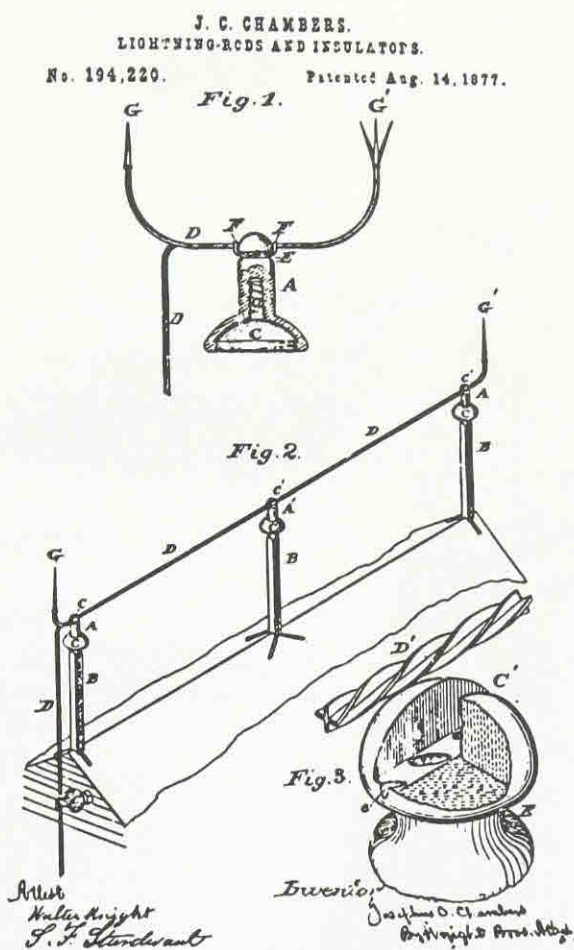
CD 317

CHAMBERS

(F-Center) CHAMBERS/PAT.AUG. 14-1877 (R-Center) PATENT/DEC 19 1871 SB

Aqua, Light Aqua, Light Green, Lime Green, Cornflower Blue, Light Purple, Dark Aqua, Sapphire Blue, Off Clear

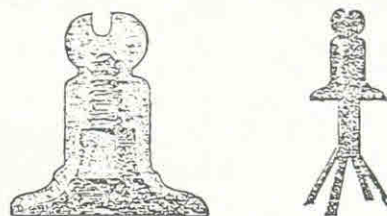
The Covington and Newport (Kentucky) business directory of 1878 listed **Josephus C. Chambers** as superintendent of the Chambers' National Lightning Protection Company. Over a period of seventeen years, Chambers was awarded twenty-one patents. The patent of August 14, 1877 was issued for Lightning-Rods and Insulators which were the components of Chamber's system.



In an 1879 pamphlet printed by the Chambers' National Protection Company of Cincinnati, Chambers' theory of atmospheric electricity is described as the "true method of protection against lightning". Rather than providing a "grounded" protection system, Chambers maintained that electricity could be attracted and diffused back into the atmosphere using his system without the use of a grounding wire.

"This apparatus is so constructed as to be electrically insulated from the earth and house, or in other words, acts as though it is suspended in the air above the building. The first thing to be done in order to have such an apparatus constructed, is to have a glass insulator made in such a shape as to keep that portion dry that connects with a wooden screw that fastens them to the building. This we do by making the glass insulator in the shape of a bell or umbrella, which served to keep the inner surface of the insulator and the wooden support dry, making it impossible for electricity to pass over it. The glass is so formed that nearly one-

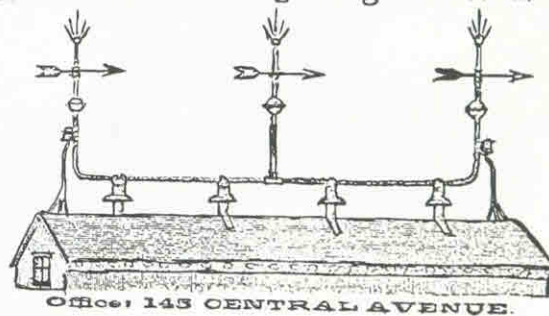
half of its large surface *always remains dry*, its weight is *five pounds* instead of only three ounces, and it separates the rod from *twelve to fourteen* inches from the building, instead of one and a half inches.



This insulator is of glass [CD 317], 7 inches high, 3 inches thick, and seven inches across the base, with a summit groove for the reception of the rod, and a circumferential groove for the tying wire, to secure said rod in position, with a screw socket and a cavity below the screw socket to prevent the electric current coming in contact with the post, and an umbrella-shaped flange to prevent the rain from wetting the inner side of the glass or the post. These large glass insulators are placed along the comb, or top, of the buildings from eight to ten feet apart; the rods are placed along on the top of these insulators in a groove made for their reception, and places the rod twelve or more inches above the building. From this rod, extending upwards, are other rods four or five feet in length, terminating in five points.

"The old rod attracts a stroke of lightning to our dwelling and fails to take care of it; the new Insulated Rod of Mr. Chambers, works oppositely, by preventing or repelling a stroke, or if received on one point it is thrown back into the atmosphere in a diffused state and not conducting it down the side of our houses and endangering our lives, it practically assists nature to do its own work, without harm to any structure which may happen to be upon the surface of the earth at the point where this restoration becomes necessary."

Chambers' National Lightning Protection Co.,



The 1882 Cincinnati Business Directory advertised the Chambers' system. Both the CD 317 style and

the companion CD 132.4 are shown installed on the rooftop. (See CD 132.4 listing for additional information)

There were two insulator styles (CD 317 and CD 317.5) produced to hold the horizontal cable and two styles (CD 132.4 and CD 124.5) designed for the vertical "riser" cables. Many theorize that the CD 317

and CD 132.4 were sold as components of the "high-priced" system, while the CD 317.5 and CD 124.5 comprised the "poor man's" system. The latter two styles are less common of the four styles.

All four Chambers insulators were manufactured by the Hemingray Glass Company and bear Robert Hemingray's December 19, 1871 patent.

CD 317.5



CD 317.5

CHAMBERS

(F-Center) CHAMBERS/PAT.AUG. 14. 1877

(R-Center) PATENT/DEC. 19. 1871 SB

Light Aqua

ACTUAL SIZE: 4 3/8" in height; 9" in width
Photo Size: 70% of Full Size

CD 317.7

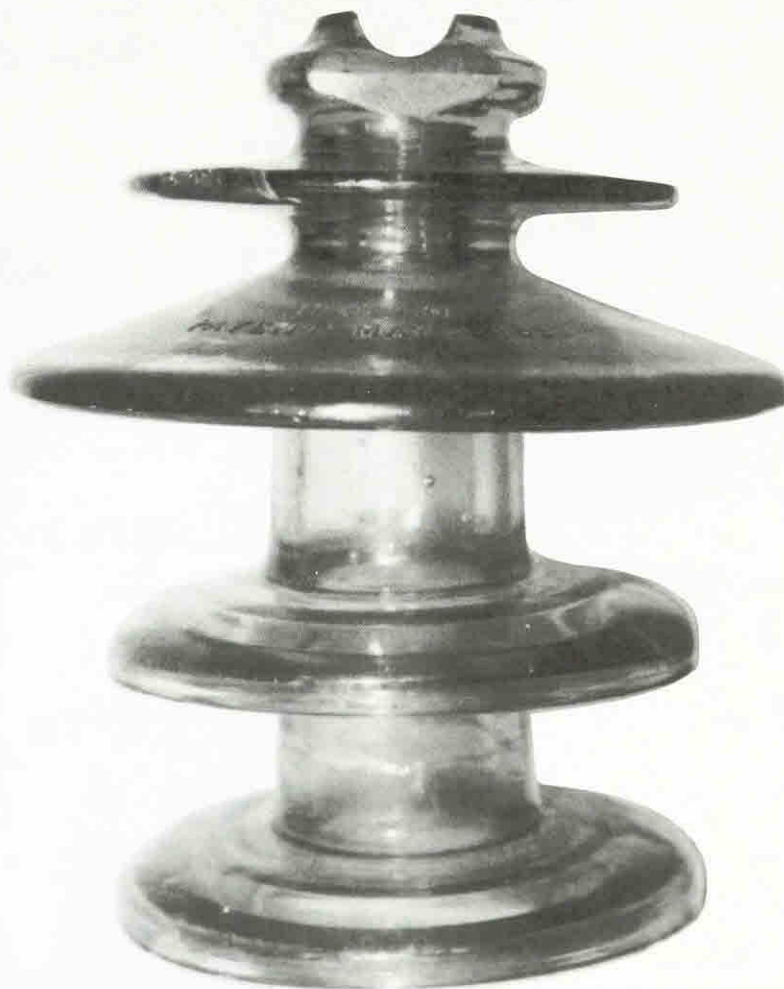


CD 317.7

H.G.CO.

(F-Skirt) H.G.CO./PATENT MAY 2. 1893 {RDP
on inner skirt only} {CD314 sleeve is unembos-
sed} RDP

Aqua



CD 314

CD 314

NO NAME

[No Embossing] SB

Aqua

CD 317.7 with two CD 314 Sleeves

*Mounted with two sleeves, the
unit stands 10 1/2" in height*

There are several unusual features about the CD 317.7 power piece that should be noted. The "H.G.CO." embossing is very unusual, since all of the previously identified Hemingray high-voltage insulators are embossed with "HEMINGRAY".

The insulator also contains the May 2, 1893 drip point patent. At first glance, the insulator appears to have no drip points, however, if turned upsidedown the small inner skirt does have the drip points. It is unique to find drip points on only the inner skirt. Hemingray did make the CD 151 style with drip points on both the outer and inner skirts and some units with drip

points on only the outer skirt, omitting them from the inner skirt. The CD 317.7 is a reversal of the standard Hemingray use of drip points.

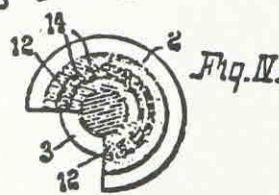
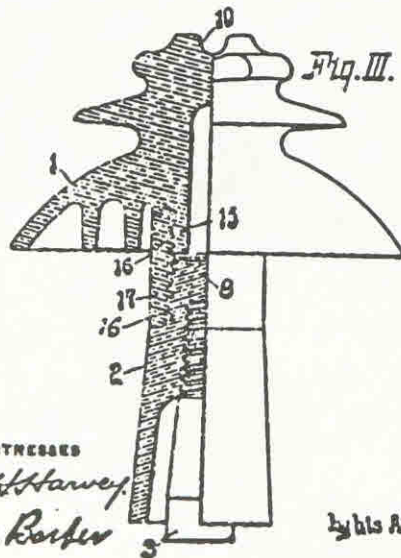
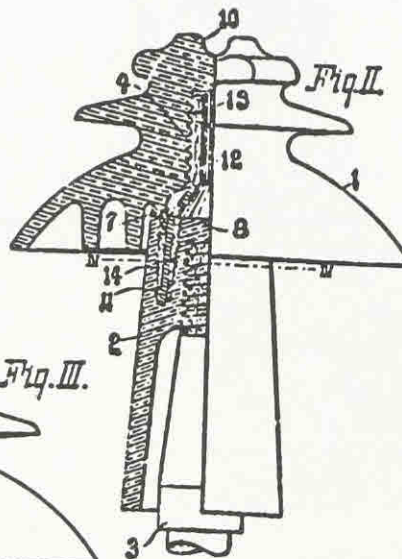
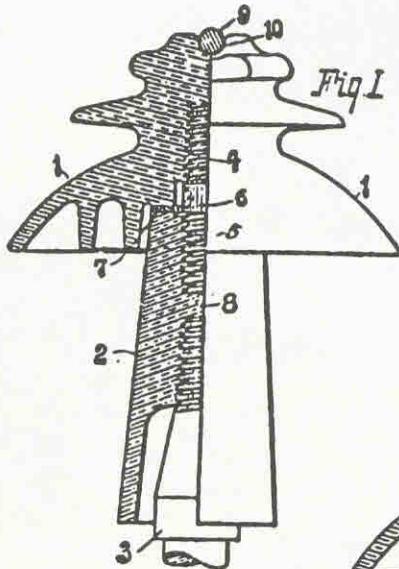
Another Vernon G. Converse patent gives those who dream of "new finds" something to think about in their search. Note that section is similar to the style of both the CD 317.7 and CD 317.8, however, the interesting feature is the sleeve section. The internal surface of the sleeve is threaded to receive a duplex threaded pin which would attach it with section one. The search goes on....!

No. 735,212.

PATENTED AUG. 4, 1903.

V. G. CONVERSE.
INSULATOR.

APPLICATION FILED NOV. 10, 1902.



WITNESSES
Geo. H. Hawley
T. A. Barber

INVENTOR
Vernon G. Converse,
By his Attorney
Wm. L. Pierce

ACTUAL SIZE; 6 1/4" in height; 10 3/8" in width
Photo Size: 60% of Full Size

CD 317.8



CD 317.8

NO NAME

(F-Skirt) "SECTION 1" (R-Skirt) PATENTED JUNE 10
1902 {See CD313 and CD313.1 for embossing on
sleeves} SB
Aqua



CD 313

CD 313

HEMINGRAY

(F-Skirt) "SECTION 2" (R-Skirt) HEMINGRAY
PATENT MAY 2 1893 SDP
Aqua

(F-Skirt) HEMINGRAY (R-Sleeve) PATENT
MAY 2 1893 SDP
Aqua

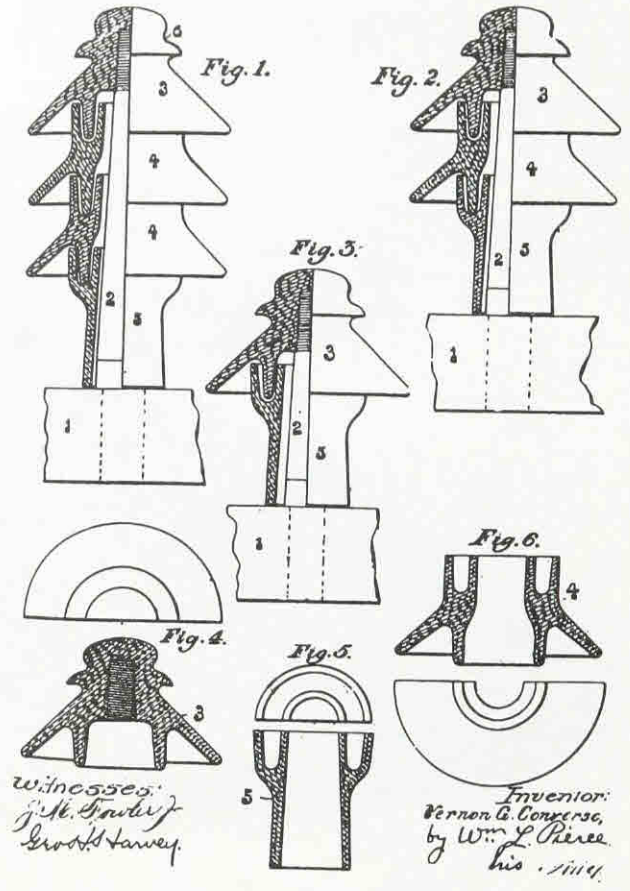
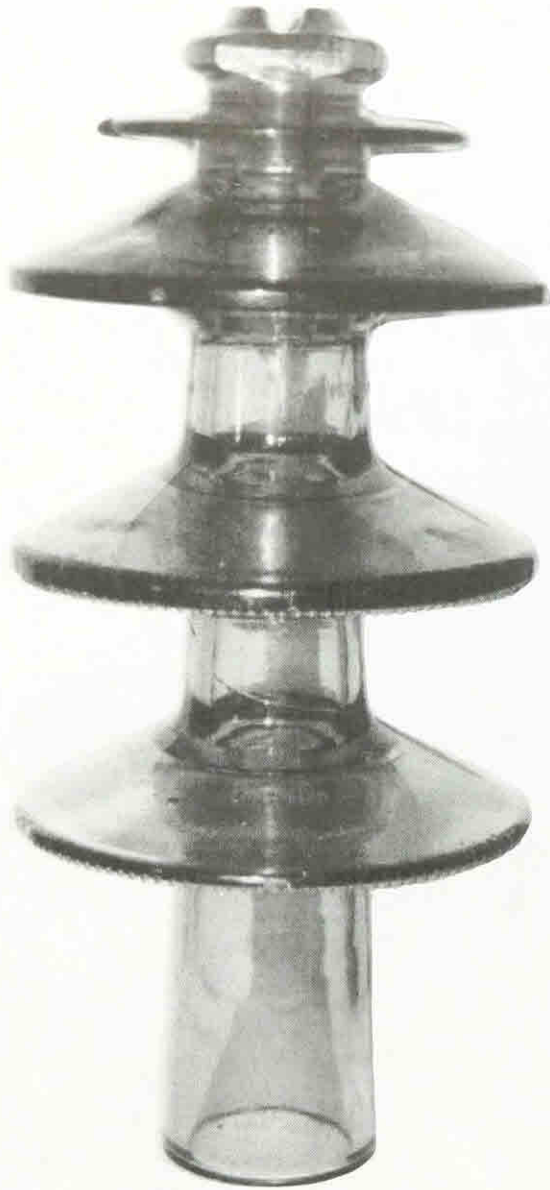


CD 313.1

CD 313.1

NO NAME

[No Embossing] SB
Aqua



CD 317.8 with two CD 313 Sleeves and one CD 313.1 Sleeve

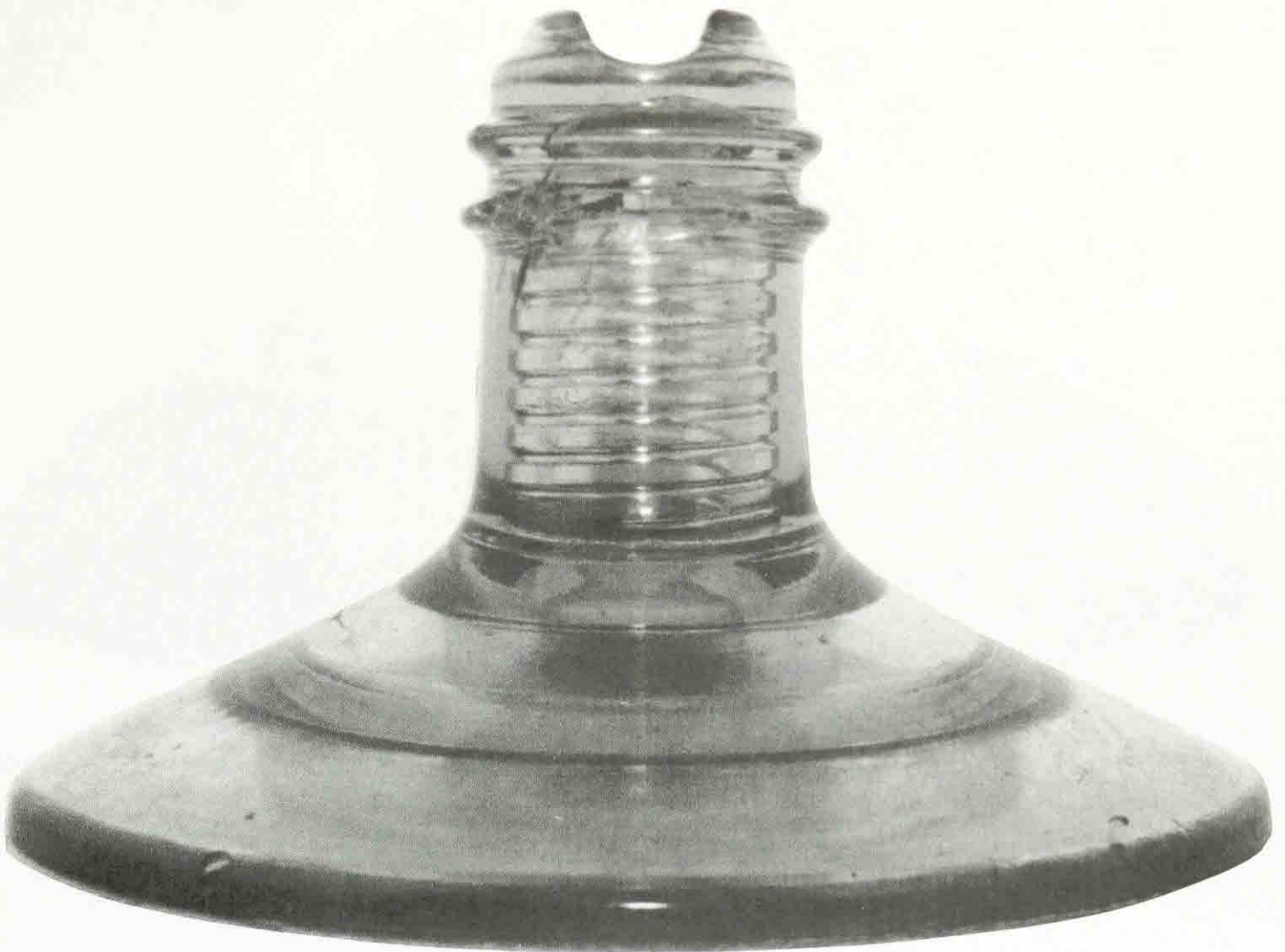
Mounted with three sleeves, the unit stands 23" in height

The patent date on **CD 317.8** belongs to **Vernon G. Converse** of Pittsburgh, Pennsylvania. The patent was granted June 10, 1902. In order to produce a high-voltage insulator, Converse enlarged the size of the insulator in order to increase the distance between the conductor and the pin. Instead of increasing the diameter of the insulator, length was added by making use of "several insulators or pieces which are not so large but that offer a high resistance to surface leakage and are easy of manufacture and to build them up in such a way that a series of breaks or gaps will be made between the conductor and the support for the insulator or insulators."

The CD 317.8 and both CD 313 sleeves have a second petticoat which fits snugly in the circular depression of the piece below it. This groove not only provided for a connecting rest between pieces but was also to be filled with oil or another insulating substance.

Two CD 317.8 units have been located, but only one of each of the mounting sleeves has been found. All four parts of this enormous multi-part high voltage insulator were made available to collectors in 1989 from an employee of the Hemingray Glass Company who had salvaged this insulator and the only known examples of CD 286.9, CD 303.5, CD 309, CD 309.5, and CD 317.7 styles.

ACTUAL SIZE: 5 1/4" in height; 8" in width
Photo Size: 85% of Full Size



CD 317.9

CD 317.9

NO NAME

[No Embossing] SB
Aqua

[No Embossing] SDP
Aqua

ACTUAL SIZE: 6" in height; 7 1/2" in width
Photo Size: 90% of Full Size



CD 318

CD 318

LOCKE

(F-Umbrella) FRED M. LOCKE VICTOR N.Y. (R-Umbrella)

[Blotted out Embossing]/N° 19 SB

Aqua, Light Green Aqua

ACTUAL SIZE: 6 1/8" in height; 9" in width
Photo Size: 75% of Full Size



CD 319

CD 319

LOCKE

(F-Umbrella) F.M. LOCKE VICTOR N.Y./N° 23

SB

Aqua

(F-Umbrella) FRED M. LOCKE VICTOR N.Y.

(R-Umbrella) [Blotted out Embossing] SB

Aqua, Light Green



CD 320

CD 320

PYREX

(F-Skirt) CORNING PYREX T.M. REG. U.S. PAT. (R-Skirt) OFF.
MADE IN U.S.A. [Number]/171 SB
Clear, Carnival, Straw

(Skirt) PYREX T.M. REG. U.S. PAT. OFF. MADE IN U.S.A.
[Number]/171 {Embossed all the way around the skirt} SB
Clear, Straw



CD 321

CD 321

NO NAME

(F-Umbrella) REGISTERED TRADE MARK (R-Umbrella) (Arc) PATENTED/JUNE 17, 1890 SB
Aqua, Green, Blue

PRISM

(F-Umbrella) (Arc) REGISTERED/(Arc) TRADE MARK/[Prism] (R-Umbrella) PATENTED JUNE 17, 1890 SB
Light Aqua, Light Blue, Green

(F-Skirt) REGISTERED/TRADE [Prism] MARK (R-Skirt) (Arc) PATENTED/JUNE 17 1890 SB
Aqua

(F-Umbrella) [Prism] (R-Umbrella) (Arc) PATENTED/JUNE 17, 1890 SB
Aqua



CD 321 Variation

Note the tall, pointed ears which differ from the large photograph



CD 322

CD 322

PYREX

(Skirt) CORNING PYREX T.M. REG. U.S. PAT. OFF. MADE IN
U.S.A. [Number]/233 {Embossed all the way around the skirt} {1" or 1
3/8" pinhole} SB

Clear, Light Straw, Carnival

ACTUAL SIZE: 5 1/2" in height; 7 1/2" in width
Photo Size: 90% of Full Size



CD 323

CD 323

PYREX

(Skirt) CORNING PYREX T.M. REG. U.S. PAT.
OFF. MADE IN U.S.A. [Letter or Number]/271
{Embossed all the way around the skirt} {1 3/8" or
1 5/8" pinhole} SB
Clear, Light Straw, Carnival

ACTUAL SIZE: 7" in height; 8 1/2" in width
Photo Size: 70% of Full Size



CD 324

CD 324

PYREX

(Skirt) PYREX T.M. REG. U.S. PAT. OFF. MADE IN U.S.A. 353/[Letter]
{Embossed all the way around the skirt} {1 3/8" pinhole} SB
Clear, Straw, Carnival

ACTUAL SIZE: 6 3/4" in height; 9" in width
Photo Size: 75% of Full Size



CD 325

CD 325

PYREX

(Skirt) CORNING PYREX T.M. REG. U.S. PAT. OFF. MADE IN U.S.A.

[Letter]/401 (Embossed all the way around the skirt) {1 3/8" or 1 5/8"
pinhole} SB

Clear, Carnival, Straw, Green Tint, Light Pink

ACTUAL SIZE: 8 1/8" in height: 10" in width
Photo Size: 60% of Full Size



CD 326

CD 326

PYREX

(Skirt) PYREX T.M. REG. U.S. PAT. OFF MADE IN
U.S.A. 453 [Letter] {1 3/8" pinhole} SB
Clear, Carnival, Straw

ACTUAL SIZE: 7 5/8" in height; 11" in width
Photo Size: 65% of Full Size



CD 327



CD 327

PYREX
(Skirt) CORNING PYREX T.M. REG. U.S. PAT.
OFF. MADE IN U.S.A. 441 {Embossed all the way
around the skirt} {1 3/8" or 1 5/8" pinhole} SB
Clear, Straw, Carnival, Green Tint

Top Variation on CD 327
*Several units have a small second ledge
on the dome of the insulator presumably for
a different type of mounting fixture.*
(Photograph courtesy of Dan Wagner)

ACTUAL SIZE: 9 1/4" in height; 12" in width
Photo Size: 55% of Full Size



CD 328

CD 328

PYREX

(F-Skirt) PYREX T.M.REG. U.S. PAT.OFF. MADE IN U.S.A. 553

(R-Skirt) C SB

Clear

ACTUAL SIZE: 10 3/8" in height; 15" in width
Photo Size: 47% of Full Size



CD 330

CD 330

PYREX

(Dome) A (F-Skirt) PYREX T.M.REG. U.S. PAT.OFF. MADE IN
U.S.A. (R-Skirt) 663 A SB
Clear, Light Yellow

ACTUAL SIZE: 11" in height; 15" in width
Photo Size: 45% of Full Size



CD 331

Largest One-Piece Glass Pintype Insulator

CD 331

PYREX

(Umbrella) CORNING PYREX T.M. REG. U.S. PAT. OFF. MADE IN U.S.A.
[Embossed all the way around the umbrella] {2 1/4" pinhole} SB
Clear, Yellow Tint, Green Tint

ACTUAL SIZE: 5 1/2" in height; 7 1/2" in width
Photo Size: 90% of Full Size



CD 333

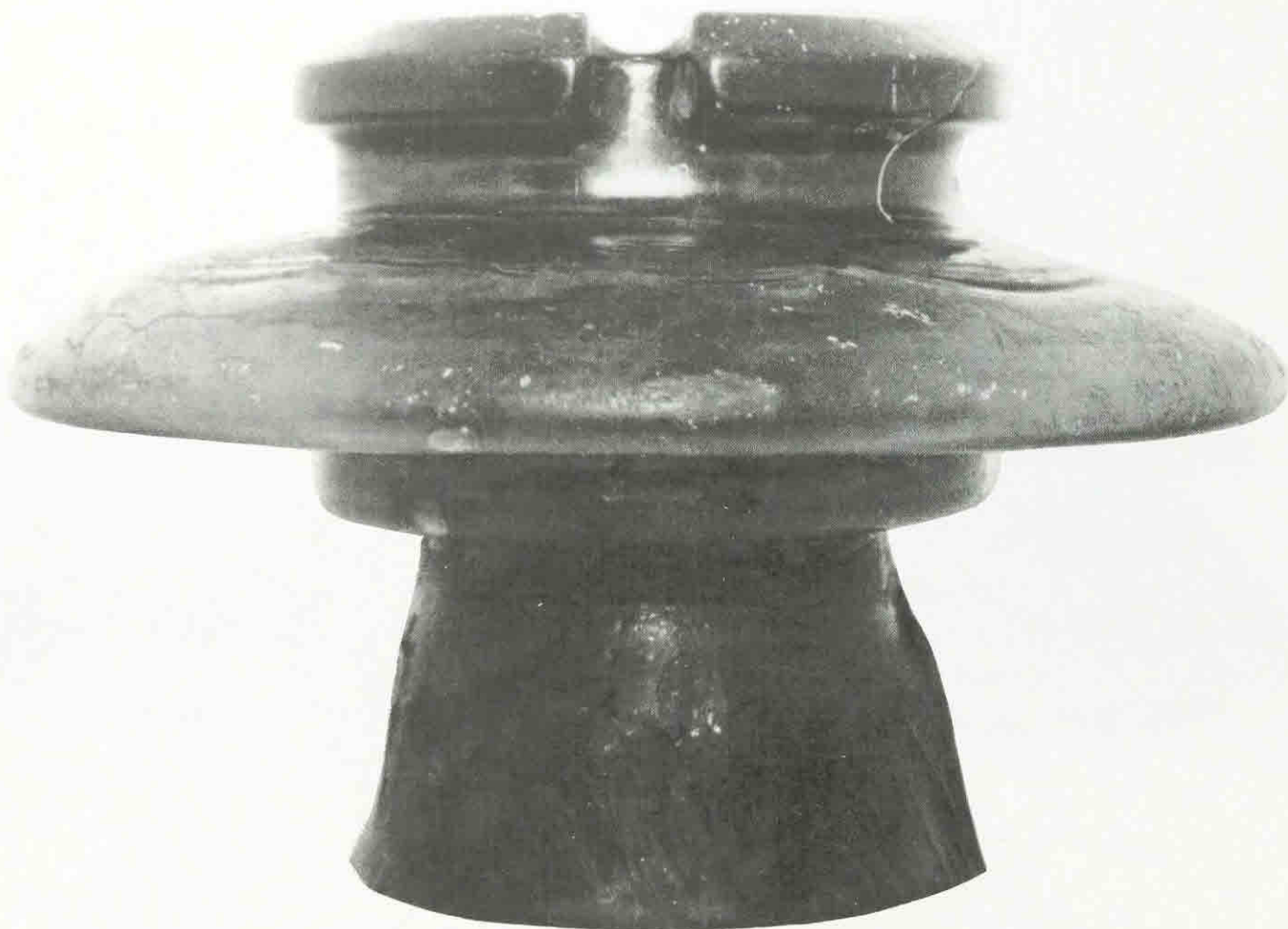
CD 333

PRISM

(F-Umbrella) (Arc)PATENTED/[Prism]/JUNE 17 1890 SB
Blue Aqua, Light Blue, Olive Green

(F-Umbrella) [Prism] SB

Green Aqua, Green, Olive Green, Yellow Green, Aqua



CD 338

CD 338

BROOKFIELD
(Top of Ear) BROOKFIELD SB
Dark Aqua

Please Note: To date only one specimen of the top portion of this insulator has been located. The skirt had been broken away from the upper section of the insulator. A plastic repair was made to reconstruct the skirt.

ACTUAL SIZE: 10" in height; 11" in width
Photo Size: 60% of Full Size



CD 342

CD 342

LOCKE

(F-Skirt) LOCKE PATENTS APR.29.1902 JUNE 7.1898
NOV.2.1896/SEPT.28.1897 DEC.15.1896 APR.30.1891
(R-Skirt) NO 25 (Sleeve-not a separate CD Number)
(F-Center) LOCKE PAT/DEC. 15. 96 JUNE 7. 98. SB
Aqua



Sleeve for CD 342

The sleeve for the CD 342 is not a separate CD for it is cemented to the upper portion at the installation site. You will note the ridges on the upper surface of the sleeve. These allow for better adherence of the cementing material.