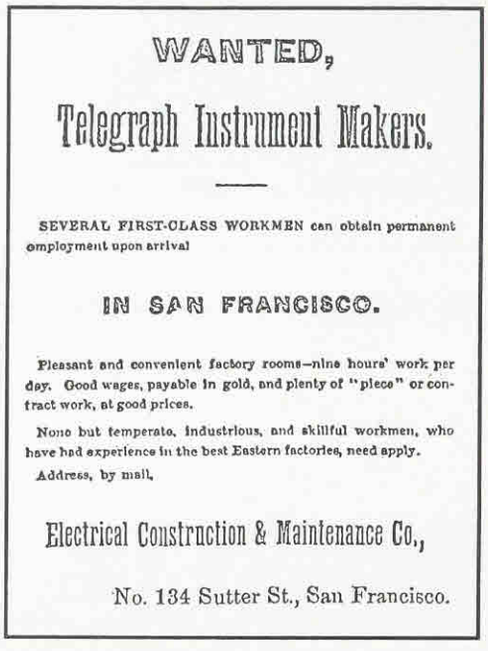
CONTRIBUTIONS From CALIFORNIA

Several California firms were involved in the manufacture and distribution of insulators for a period that spanned the years 1871 to 1940. The earliest companies were primarily supply houses for telegraph and electrical equipment and were involved in the construction of both electric and telegraph lines. Unique to early line construction were the square redwood poles and several styles of insulators which were used only by the California companies.

CONSTRUCTION AND SUPPLY HOUSES

Electrical Construction and Maintenance Co.


WANTED,

Telegraph Instrument Makers.

SEVERAL FIRST-CLASS WORKMEN can obtain permanent employment upon arrival

IN SAN FRANCISCO.

Pleasant and convenient factory rooms—nine hours' work per day. Good wages, payable in gold, and plenty of "piece" or contract work, at good prices.

None but temperate, industrious, and skillful workmen, who have had experience in the best Eastern factories, need apply.

Address, by mail,

Electrical Construction & Maintenance Co.,

No. 134 Sutter St., San Francisco.

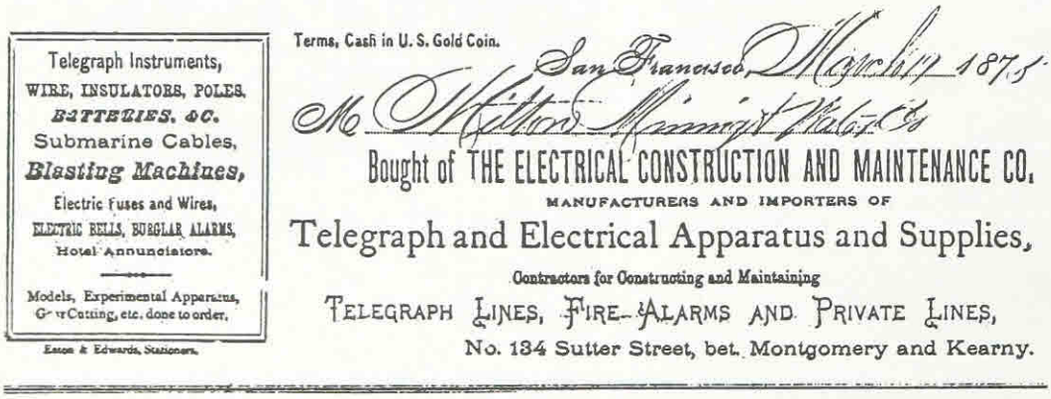
(Figure 2.) Early advertisement to entice workers to the E. C. &. M. Co. of San Francisco.

Electrical Construction & Maintenance Co.
Telegraphic and Electrical Engineers, Manufacturers and Contractors.

The Electrical Construction and Maintenance Company was organized on December 23, 1870, and the incorporation certificate was filed with the county clerk of San Francisco, California, on December 28, 1870. George S. Ladd served as its superintendent. Company invoices indicate that its factory and salesroom were located at 134 Sutter Street between Montgomery and Kearny.

The company supplied telegraph wire, insulators, and poles. They also dealt with commercial and private telegraph lines, submarine cables, and various types of fire alarm systems. (Figure 1.) Since it was the only company of its type west of the Mississippi, it supplied construction and maintenance equipment to many of the western states, British Columbia, and south into Mexico. It is credited with updating Western Union telegraph lines throughout the western states. Business was good and work plentiful for those who wanted to venture to the West Coast. (Figure 2.)

Insulators used by the company are embossed "E.C.&.M. Co. S.F." The embossing is always located on the front of the dome. The shape and design (CD 123) are both unique to this company. Four main varieties


Telegraph Instruments,
WIRE, INSULATORS, POLES,
BATTERIES, &C.
Submarine Cables,
Blasting Machines,
Electric Fuses and Wires,
ELECTRIC BELLS, BURGLAR ALARMS,
Hotel Annunciators.

Models, Experimental Apparatus, Gr vCutting, etc. done to order.

Eaton & Edwards, Stationers.

Terms, Cash in U. S. Gold Coin.

San Francisco, March 19 1875

Mr Hilton Manager Pac. Co

Bought of THE ELECTRICAL CONSTRUCTION AND MAINTENANCE CO.

MANUFACTURERS AND IMPORTERS OF

Telegraph and Electrical Apparatus and Supplies,

Contractors for Constructing and Maintaining

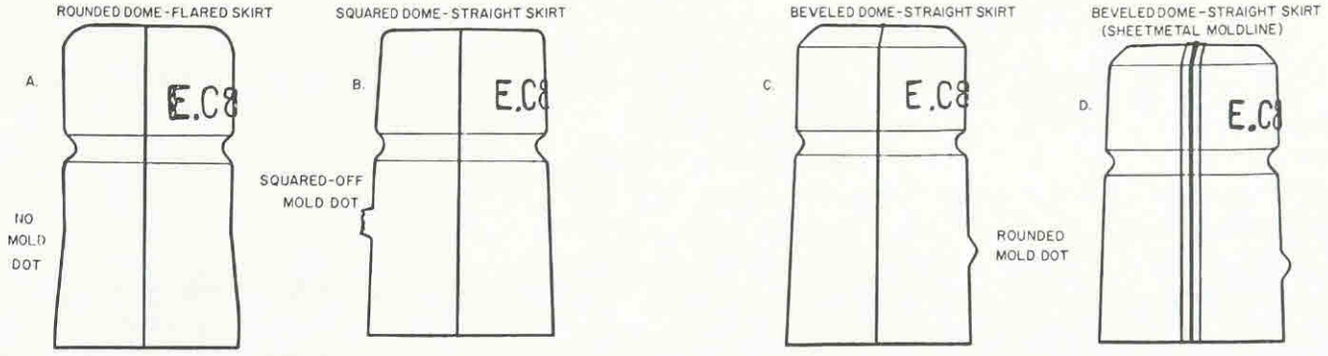
TELEGRAPH LINES, FIRE-ALARMS AND PRIVATE LINES,

No. 134 Sutter Street, bet. Montgomery and Kearny.

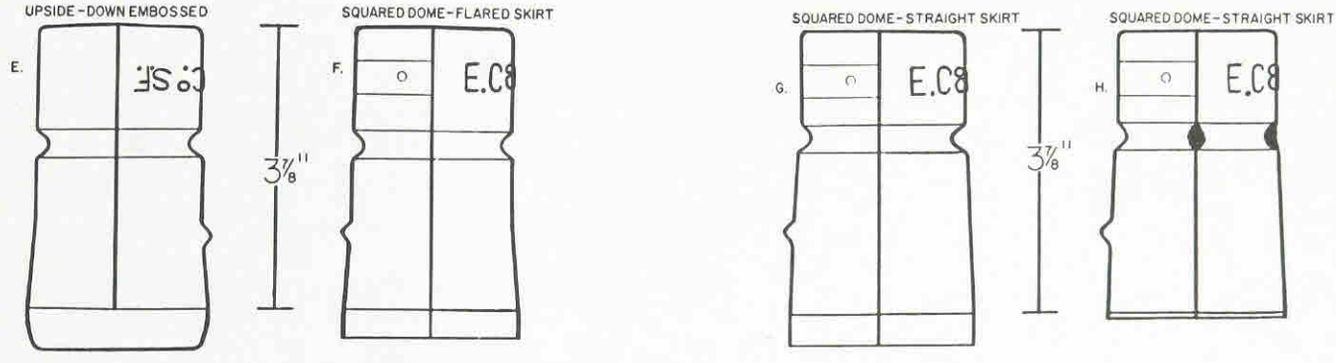
(Figure 1.) An early invoice dated March 19, 1875, indicating the business interests of The Electrical Construction and Maintenance Company. (Courtesy of James Doty)

have been located. (Figure 3A.) There is a wide variety of heights in the E.C.& M.Co. insulators. They can range anywhere from three inches to five inches tall, dependent upon the amount of glass poured into the mold and the depth that the screw thread plunger was turned. Their insulators display some of the most spectacular colors; cobalt, amber, olive green, and a wide range of aquas, some of which have glass imperfections such as amber, milk, and steam. The rarest E.C.& M. Co. S.F. insulators are the ones which are embossed upside-down and those found in a purple. (Figure 3B.) To date, the manufacturer of these insulators has not been established; however, it is thought to be the Pacific Glass Works of San Francisco.

The E.C.&M. Co. underwent reorganization in 1877 and terminated their business operations.



(Figure 3A.) Pictured above are the three dome styles of E.C.&M Co. insulators. (A) The rounded dome, flared skirt is the only E.C.& M. without a mold dot. Colors are aquas, dark opaque green, emerald green, cobalt blue, light cobalt, dark ink blue, light green, dark lime green, light blue, olive green, and olive amber. (B) The square dome, straight skirt is also known as "flat top, square dot" and "flat dome". These come in sage and lime greens , aquas, dark ink blue, purple, dark yellow amber, olive amber and blackglass amber. (C) The beveled dome and a rounded mold dot are found in aqua, apple and lime green. (D) The style is the same as (C) except for the heavy sheetmetal mold line and is sometimes referred to as the "tin mold". E .C.& M. colors include light blue , dark ink blue, lime and apple green, and aqua. (Illustrations from July 1974 *Crown Jewels of the Wire* article by Fritz Kettenburg with color variations updated by E.C.&M. Co. specialty collectors)



(Figure 3B.) The upside-down-embossed E.C.&M. style and three others related to it have squared domes and a horizontal mold line around the insulator 3 3/4" from the top of the dome. All four have the same rounded mold dot. (F), (G), and (H) have a faint outline on the back side of the dome where the incorrect embossing was covered with a riveted plate. Height variations occur only between the horizontal mold line and the base. (E) The upside-down embossing is the rarest style and has a rounded rather than sharply beveled base. Colors include aqua, green ,and cobalt blue. (F) has a rough base and the mold line over the dome cuts through the horizontal line to the base. The colors are dark opaque green, aqua, emerald green, dark lime green, light green, olive green, cobalt blue, light cobalt, light blue, and dark ink blue . (G) This style is identical to (F) except for a straight skirt. (H) This unit is the same as (G) except for rough lumps of glass in the wire groove at both mold line crossings and in front under the embossed "M". Colors for the (G) and (H) styles are aquas, dark ink blue,Aurora blue, ambers, blackglass amber, purple, sage green, and light and lime green. (Illustrations from August 1974 *Crown Jewels of the Wire* article by Fritz Kettenburg with color variations updated by E.C.&M.CO. specialty collectors)

California Electrical Works

THE CALIFORNIA

ELECTRICAL WORKS

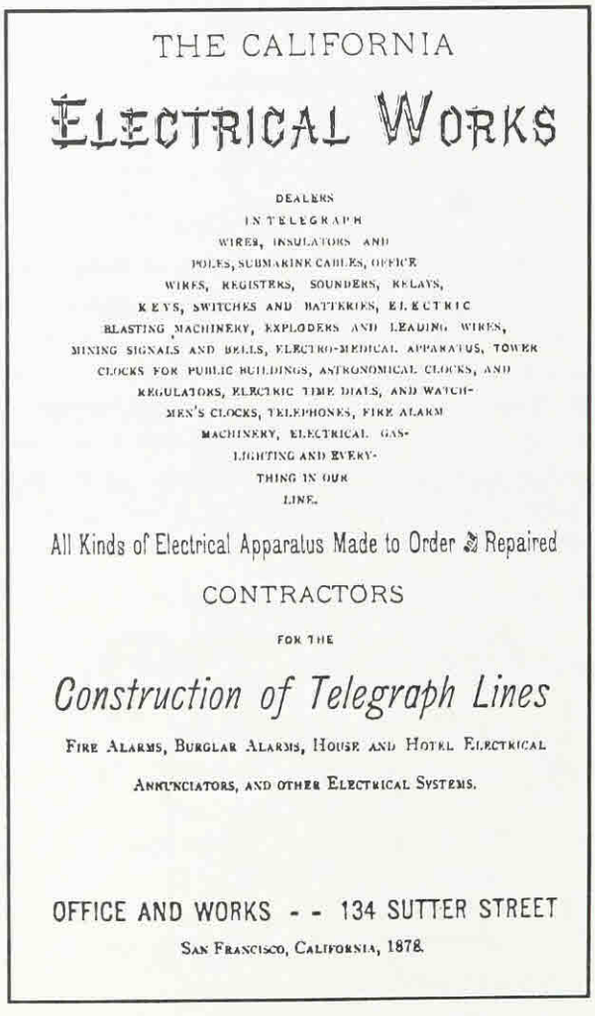
A reorganization of the Electrical Construction and Maintenance Company of San Francisco took place in June 1877 when the California Electrical Works was incorporated, succeeding by purchase the businesses of E.C.&M. Co., the California Electric Power Company, and the Pacific Electro-Depositing Works. George S. Ladd was listed as president. Paul Seiler, who along with Joseph Herz had been the proprietors of the California Electric Power Company located at 412 Market Street, became superintendent of the manufacturing department as a result of the reorganization. Offices and works were at 134 Sutter Street, the same location as their predecessors.

In its 1878 catalog (Figure 1.) C.E.W. offered a wide variety of services. In the same catalog, an insulator resembling a CD 123 was offered. (Figure 2.) This style was used until about 1880 by C.E. W. Co. and is found with only the "E.C. & M. CO. S.F." embossing.

However, there were three styles of insulators manufactured with a California Electric Works embossing. The CD 130 and CD 130.1 (Figure 3.) are embossed "CAL. ELEC. WORKS" and a pony style (CD 120) can be found unembossed as well as embossed with "C.E.W." on the skirt of the insulators. The CD 130 style is found in a variety of shades of aqua, some of which contain streaks of amber, bubbles, and steam. The CD 130.1 has been found in cobalt and aqua. The most popular color is the vibrant cobalt color in which this style is found. The CD 120 C.E.W. units show an even greater variety of height and colors. This style is available in aqua, purple, cobalt, and olive green. Colors other than aqua are quite rare. Unembossed units are found only in purple, aqua, and a light straw color. The manufacturer of the California Electrical Works insulators is unknown.

The California Electrical Works also continued to influence installations in Canada that had been established by the E.C.&M. Co. The George S. Ladd Chapter of the Telephone Pioneers of America, San Francisco, has made available the minutes of the board of directors meeting on March 10, 1880. In the minutes we find the company associating with McMicking, a leading contributor to the development of the Canadian telegraph and telephone industry: "A communication from Manager Seiler relative to the appointment of R.B. McMicking as agent of the Company at British Columbia was read and on motion of Mr. Tevis, seconded by Mr. Wilson, Mr. McMicking was duly appointed as such agent on such commission as may be hereafter established."

Since the California Electrical Works spanned many years, plant relocations were inevitable. (Figure 4. through Figure 7.) In 1882 Monroe Greenwood succeeded George S. Ladd as company president. In the California Electrical Works record book chronicling the meeting of the board of directors on October 16, 1888, Superintendent Paul Seiler was discharged. Minutes indicated that an amount of $1,200.87 was credited by Superintendent Seiler without authority. His discharge was due to his giving credit to persons in violation of express order of the board of directors, for acts detrimental to the interests of the company, and for violation of his


THE CALIFORNIA

ELECTRICAL WORKS

DEALERS
IN TELEGRAPH
WIRES, INSULATORS AND
POLES, SUBMARINE CABLES, OFFICE
WIRES, REGISTERS, SOUNDERS, RELAYS,
KEYS, SWITCHES AND BATTERIES, ELECTRIC
BLASTING MACHINERY, EXPLODERS AND LEADING WIRES,
MINING SIGNALS AND BELLS, ELECTRO-MEDICAL APPARATUS, TOWER
CLOCKS FOR PUBLIC BUILDINGS, ASTRONOMICAL CLOCKS, AND
REGULATORS, ELECTRIC TIME DIALS, AND WATCH-
MEN'S CLOCKS, TELEPHONES, FIRE ALARM
MACHINERY, ELECTRICAL GAS-
LIGHTING AND EVERY-
THING IN OUR
LINE.

All Kinds of Electrical Apparatus Made to Order & Repaired

CONTRACTORS

FOR THE

Construction of Telegraph Lines

FIRE ALARMS, BURGLAR ALARMS, HOUSE AND HOTEL ELECTRICAL
ANNUNCIATORS, AND OTHER ELECTRICAL SYSTEMS.

OFFICE AND WORKS - - 134 SUTTER STREET

SAN FRANCISCO, CALIFORNIA, 1878.

(Figure 1.) 1878 California Electrical Works catalog which indicated the type of services in which the company was involved. (Courtesy of Glenn Yows)

contract with the company. His discharge was to be effective October 31, 1888, and the secretary was instructed to inform Seiler of the board's action. After eleven years in the service of the California Electrical Works, Paul Seiler went into business for himself in direct competition with his former employers.

In 1892 California Electrical Works became the West Coast agents for Western Electric Company which