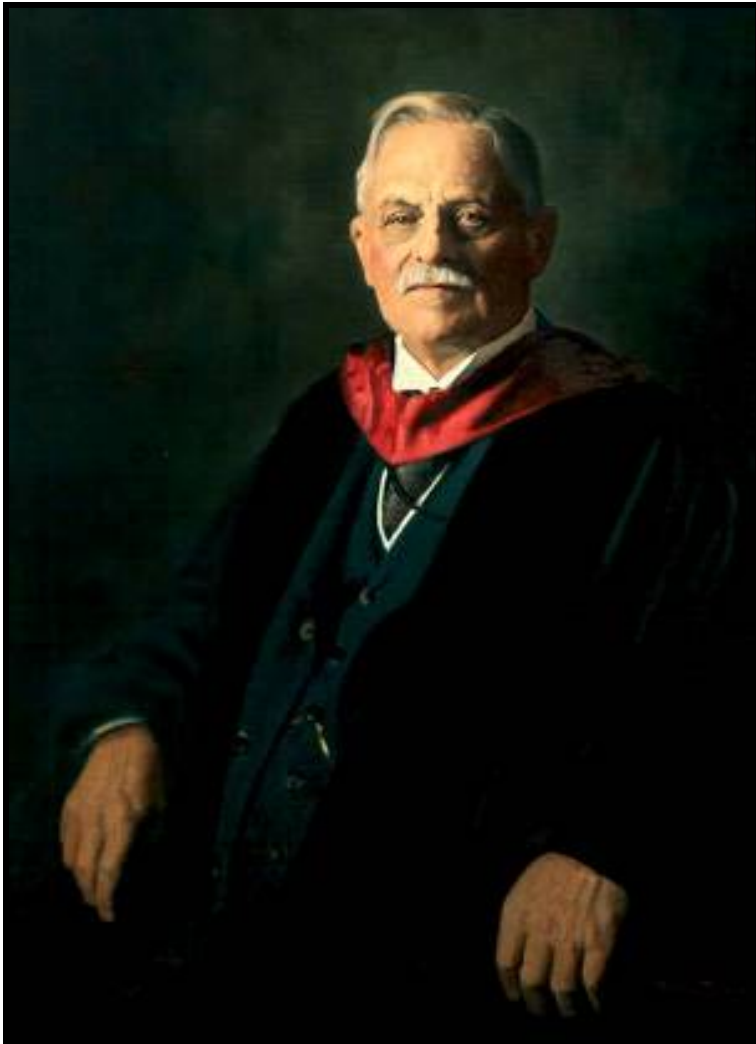


ELIHU THOMSON

ELECTRIC COMPANY FOUNDER

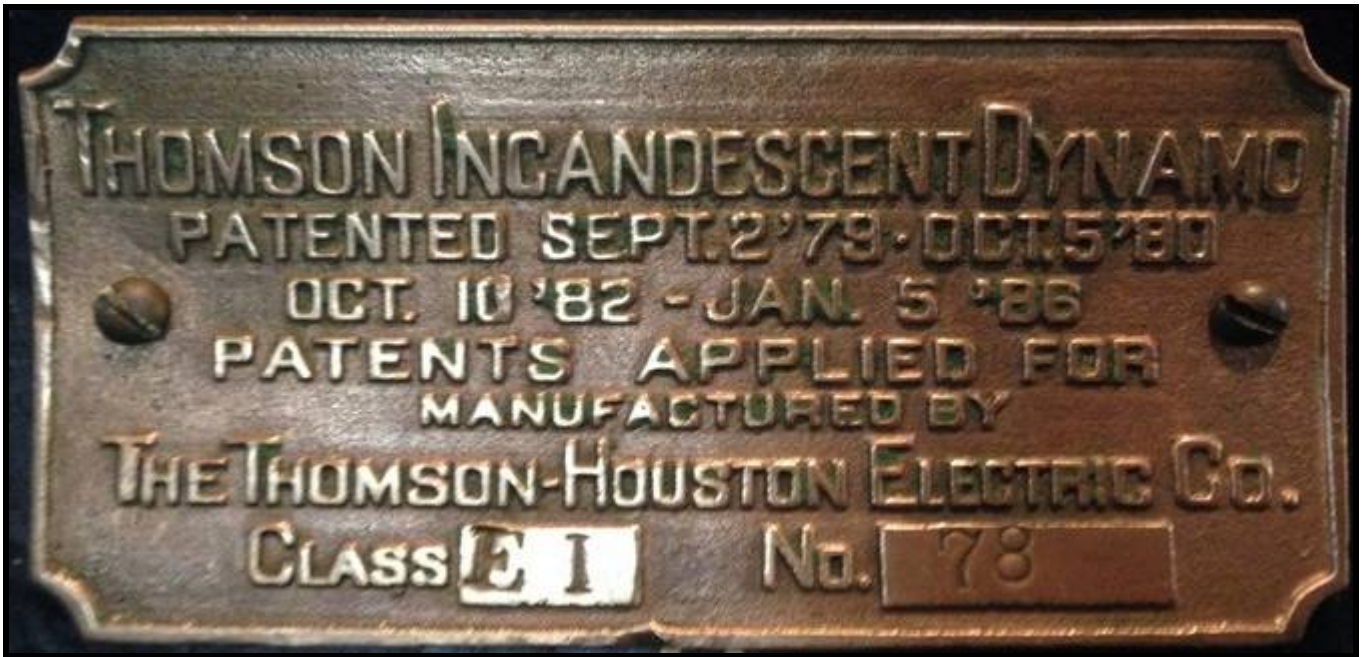
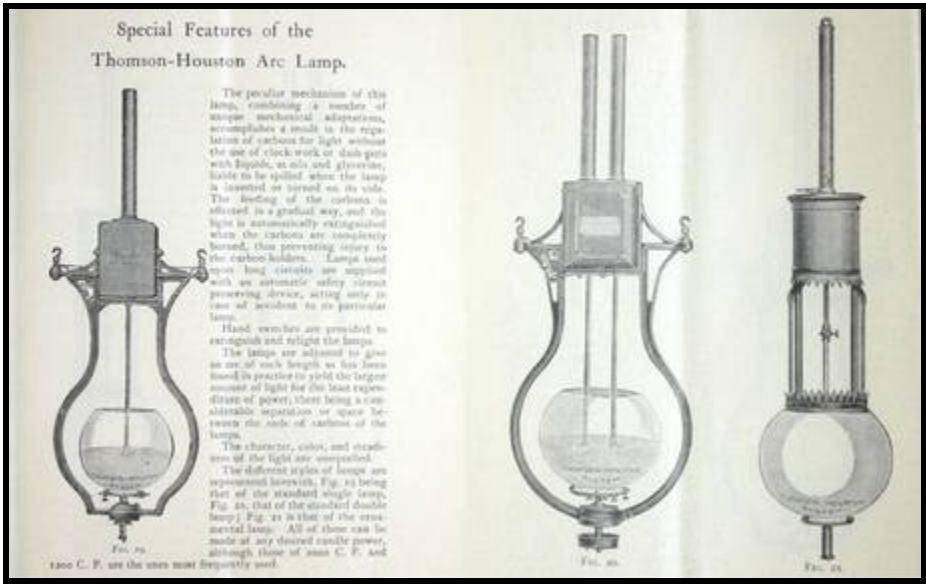
by Brian Roberts, CIBSE Heritage Group



Elihu Thomson, 1853-1937

Thomson was born in Manchester, England, on the 29th March, 1853, his family moving to Philadelphia in 1858. He attended the Central High School in Philadelphia and graduated in 1870, then took up a teaching position at the School. In 1876, at the age of 23, he held the Chair of Chemistry. In 1880, Thomson left Central to pursue research in the emerging field of electrical engineering.

Together with Edwin J Houston, Thomson founded the Thomson-Houston Electric Company in 1883, where his inventions included an arc-lighting system, an automatically regulated three-coil dynamo, a magnetic lighting arrester and a local power transformer.



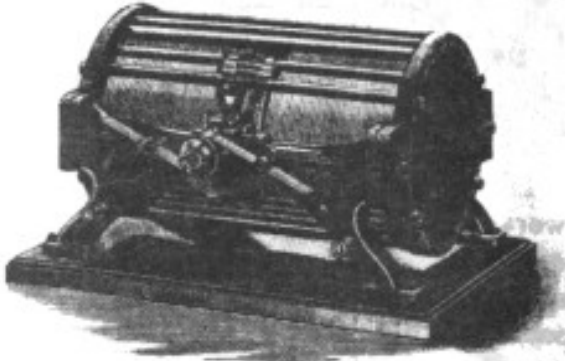
In 1884, the Thomson-Houston International Company was formed. Then in 1889, Thomson-Houston bought the Brush Company which resolved their patent disputes relating to the arc lamp and the dynamo. Thomson-Houston went on, in 1892, to merge with the Edison General Electric Company to form the General Electric Company (Edison having been the loser in the battle of DC versus AC current).

Thompson chose to continue to work in his laboratory at Lynn, Massachusetts. It has been recorded that Thompson “displayed methodological characteristics in the workshop and the laboratory as inventor and in the business world as entrepreneur.” He particularly enjoyed solving problems in the field of electric light and power, receiving more than 700 patents for his inventions.

THE AMERICAN ELECTRIC COMPANY.

Proprietors of the Thomson-Houston System of

ELECTRIC LIGHTING.



MANUFACTURERS OF THE

THOMSON-HOUSTON

Dynamo - Electric Machine,

Electric Lamps, Current Regulators,

And Electro-Plating Apparatus.

Unrivalled for Simplicity, Economy, and Efficiency.

MANUFACTORY AND PRINCIPAL OFFICE:

Nos. 25 and 27 Lake St., New Britain, Conn.

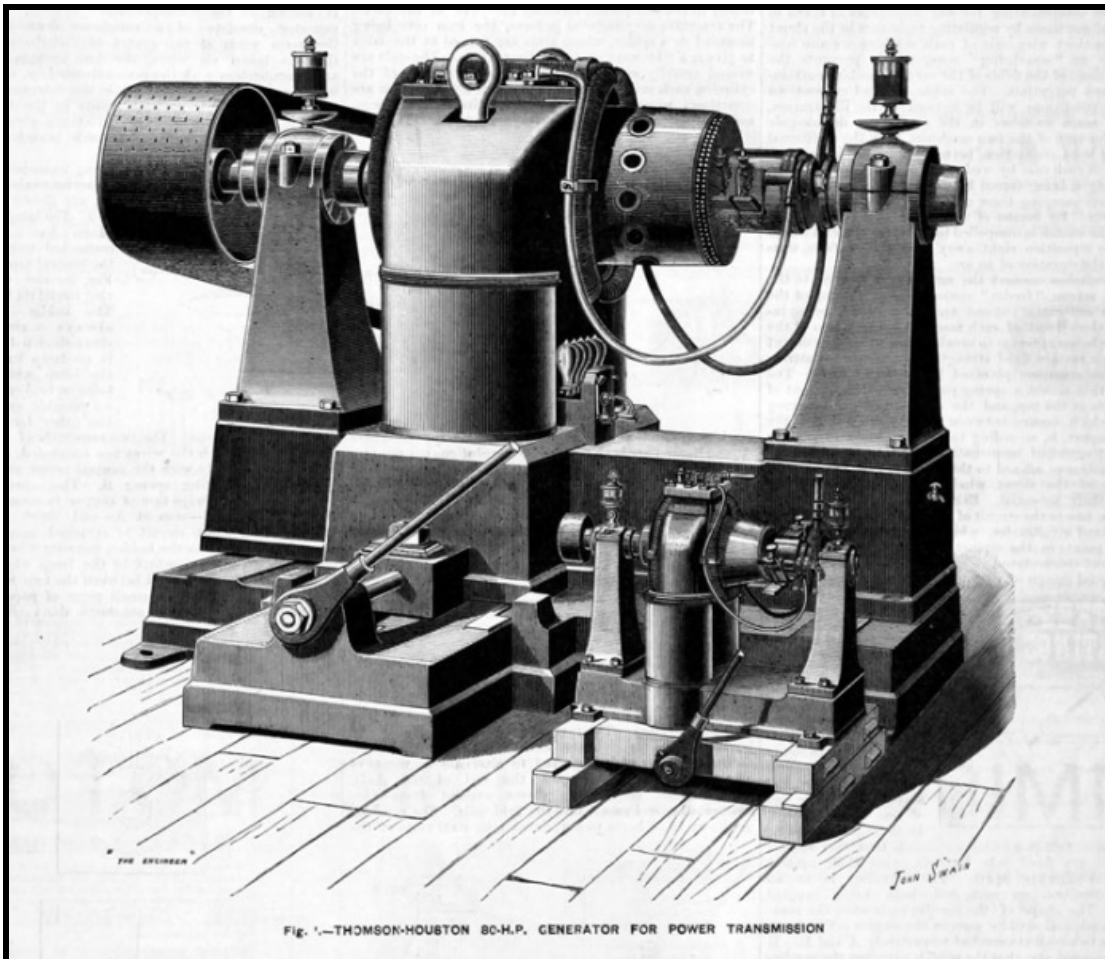
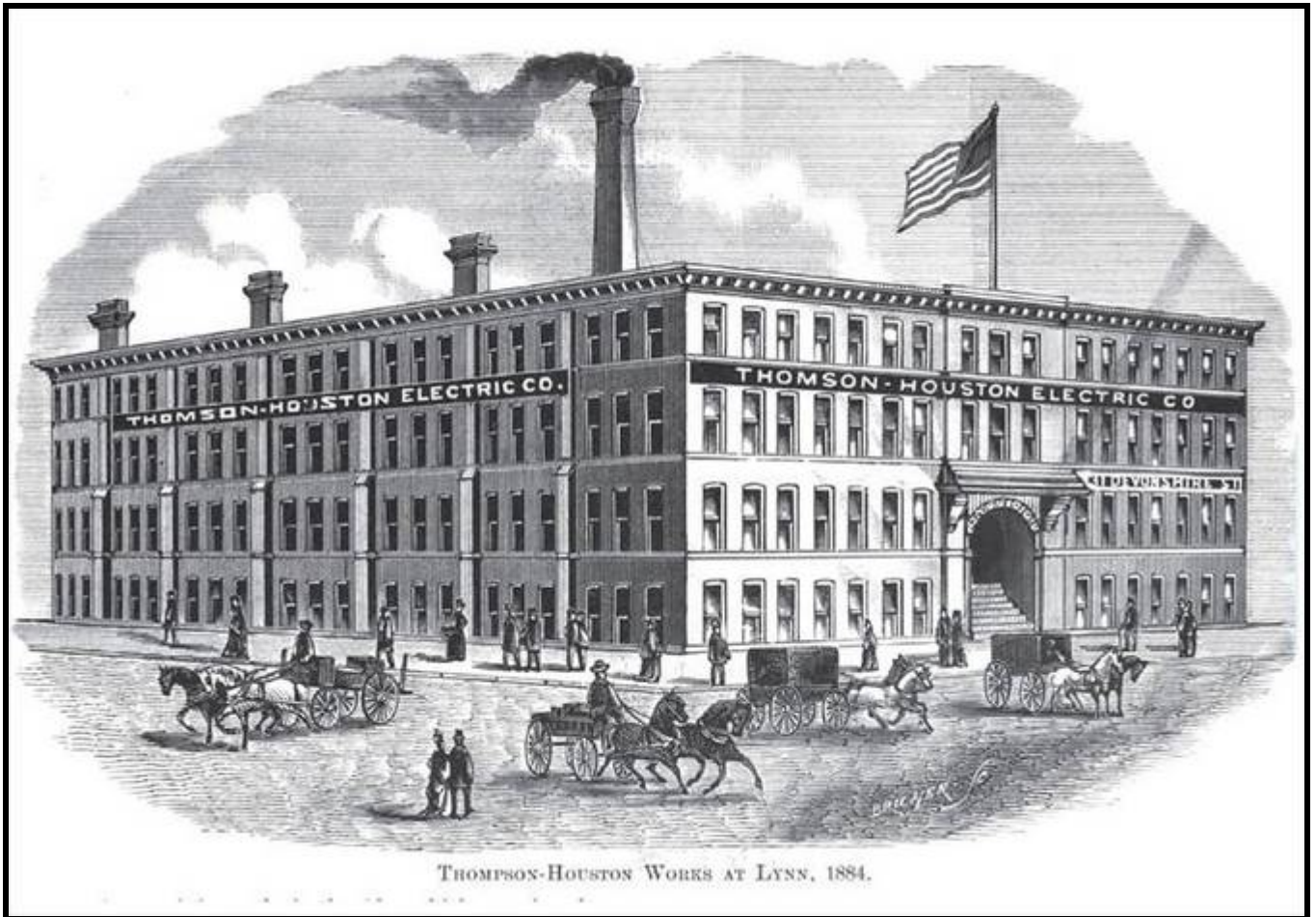
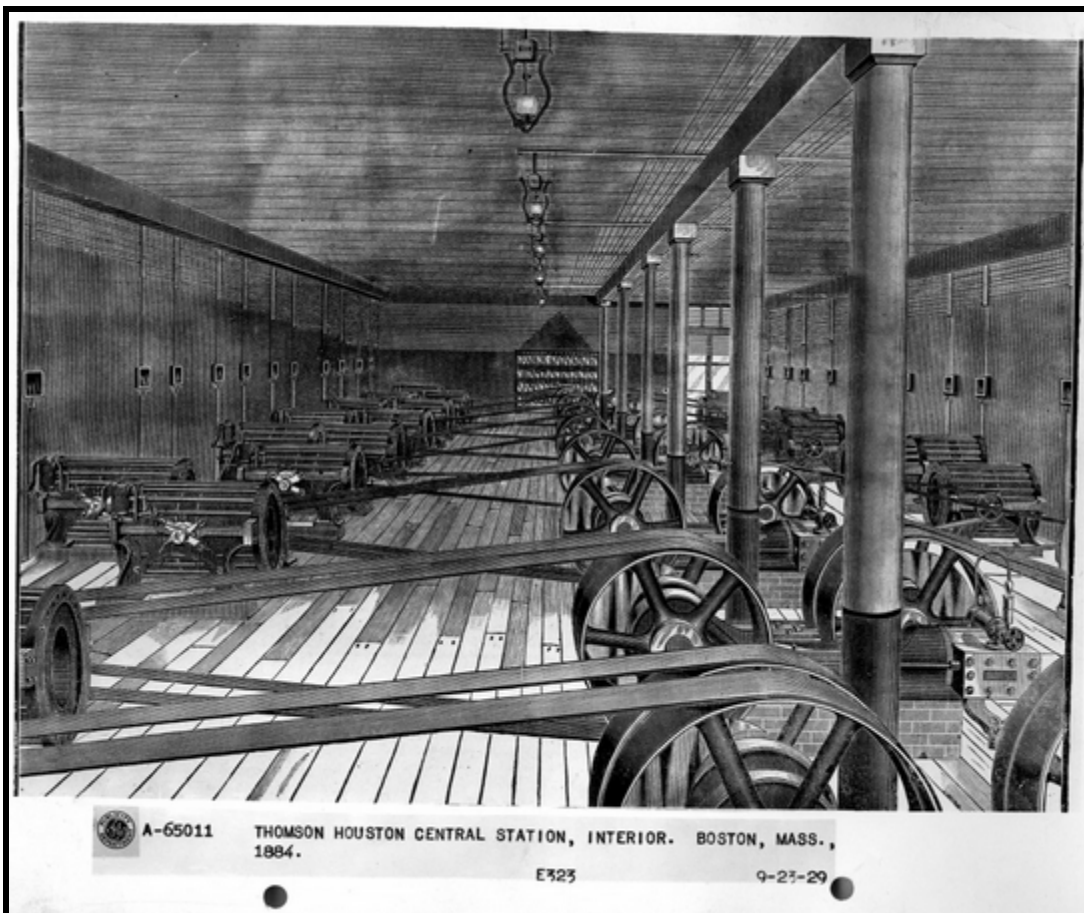


Fig. 1.—THOMSON-HOUSTON 80-H.P. GENERATOR FOR POWER TRANSMISSION



THOMSON-HOUSTON WORKS AT LYNN, 1884.

Thomson-Houston Electric Company, 1884



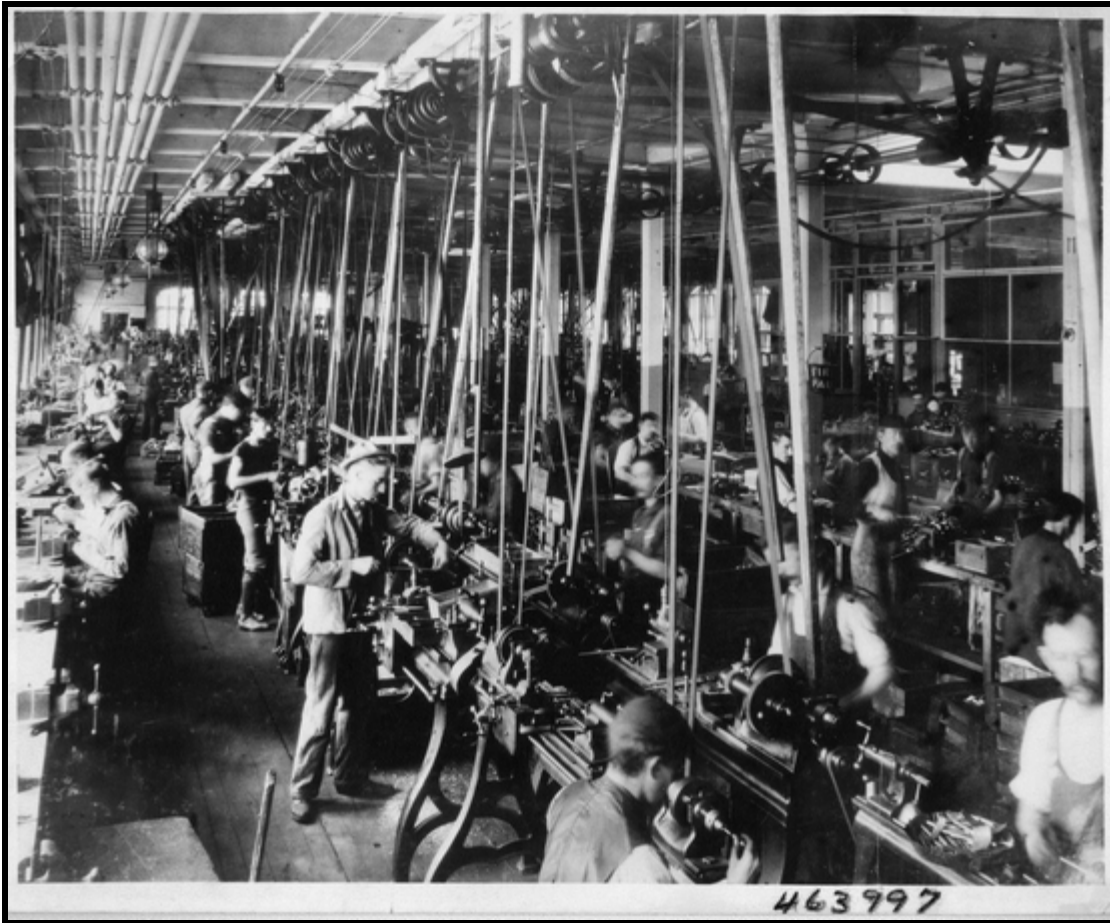
A-65011 THOMSON HOUSTON CENTRAL STATION, INTERIOR. BOSTON, MASS., 1884.

E323

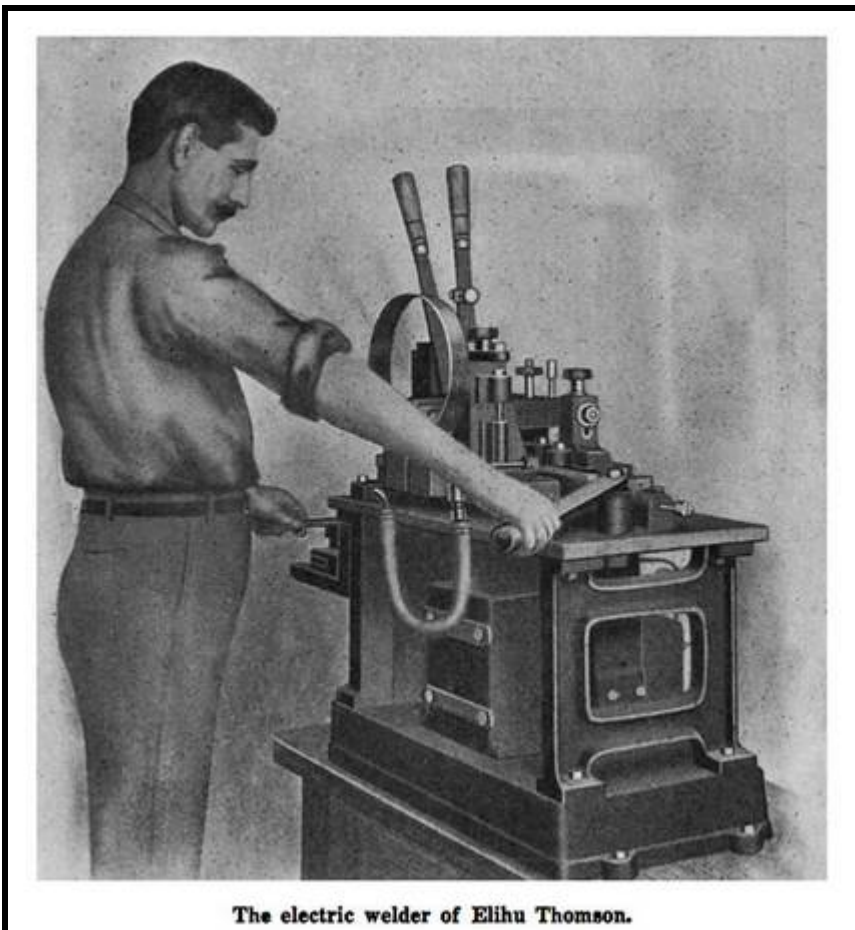
9-27-29



Elihu Thomson



Thomson-Houston Works, c.1895



The electric welder of Elihu Thomson.

EMPIRE EXHIBITION—MODEL COLLIERY ELECTRIC WINDING EQUIPMENT

THE BRITISH THOMSON-HOUSTON COMPANY, LTD., RUGBY, AND MARKHAM AND CO., LTD., CHESTERFIELD, ENGINEERS

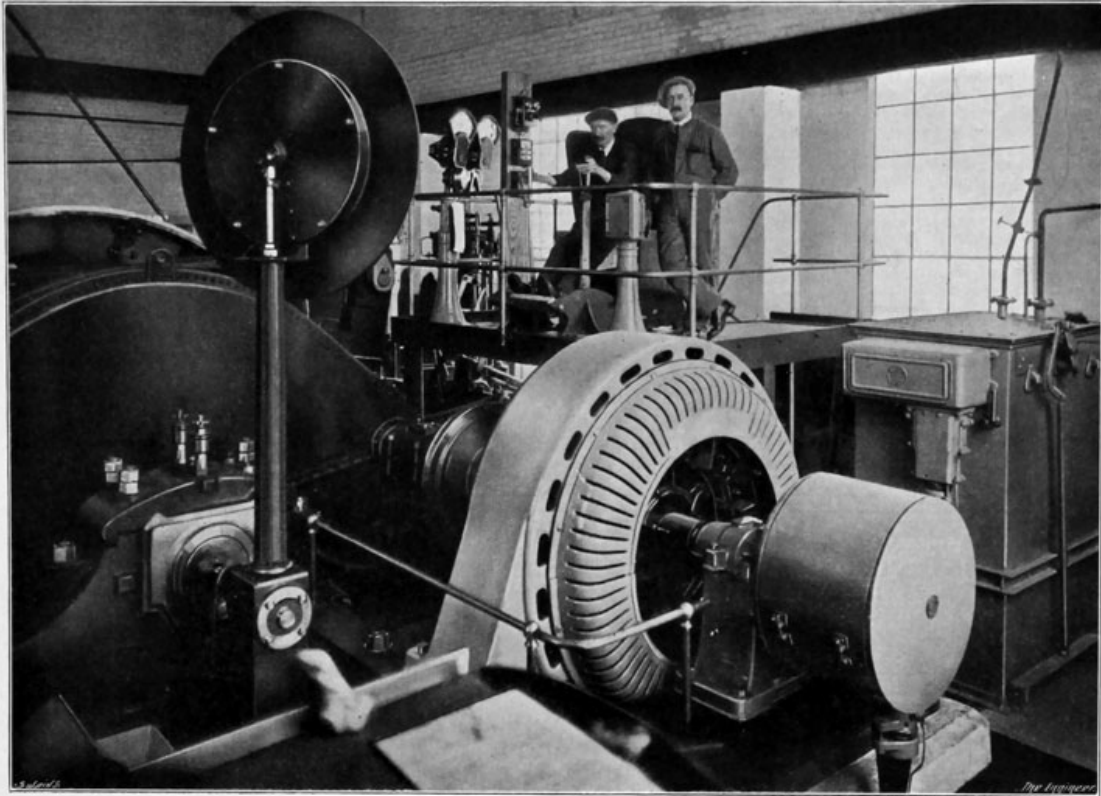


FIG. 262—MAIN MOTOR FOR WINDING ENGINE

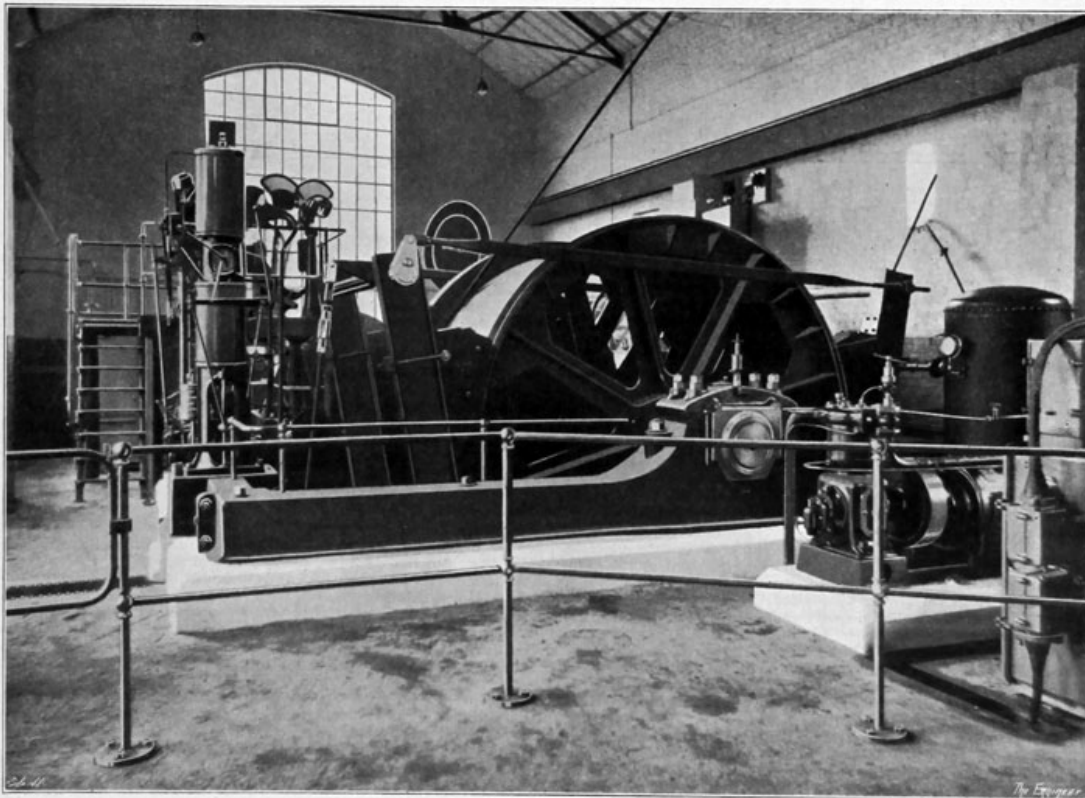
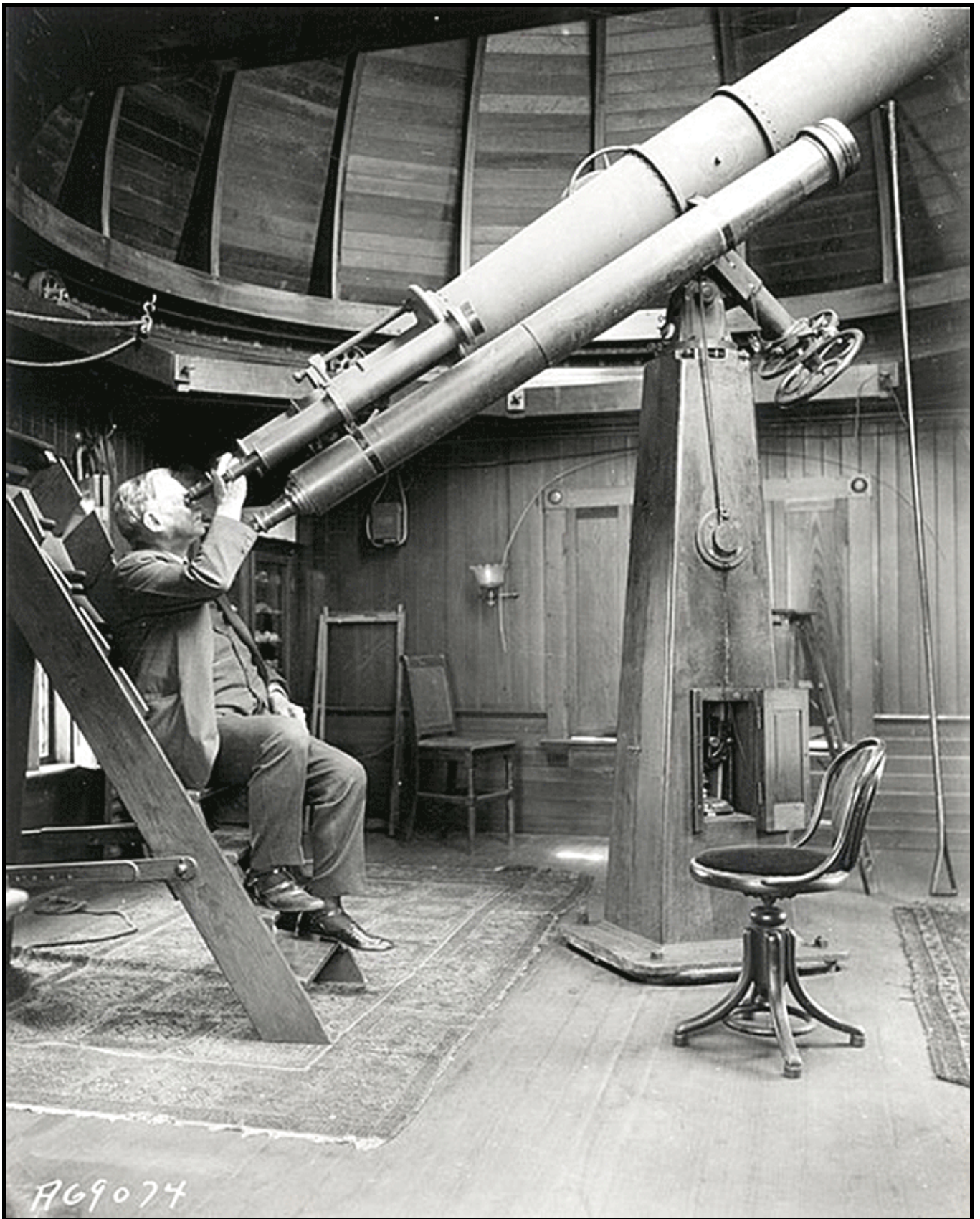


FIG. 263—THE WINDING ENGINE AND ELECTRICALLY-DRIVEN COMPRESSOR



Thomson at leisure

In 1893, the Compagnie Francaise Thomson-Houston (CFTH) was formed in Paris. Then in 1896, British Thomson Houston (BTH) was created (having been previously Laing, Wharton & Down, in business since 1886).

The British Thomson-Houston Co. Ltd.

ELECTRICAL ENGINEERS AND CONTRACTORS.



SWITCHBOARDS



Open and Enclosed
ARC LAMPS,
Direct or Alt. Currents.



INCANDESCENT LAMPS,

THOMSON WATTMETERS,

TRANSFORMERS, FAN MOTORS, ETC.

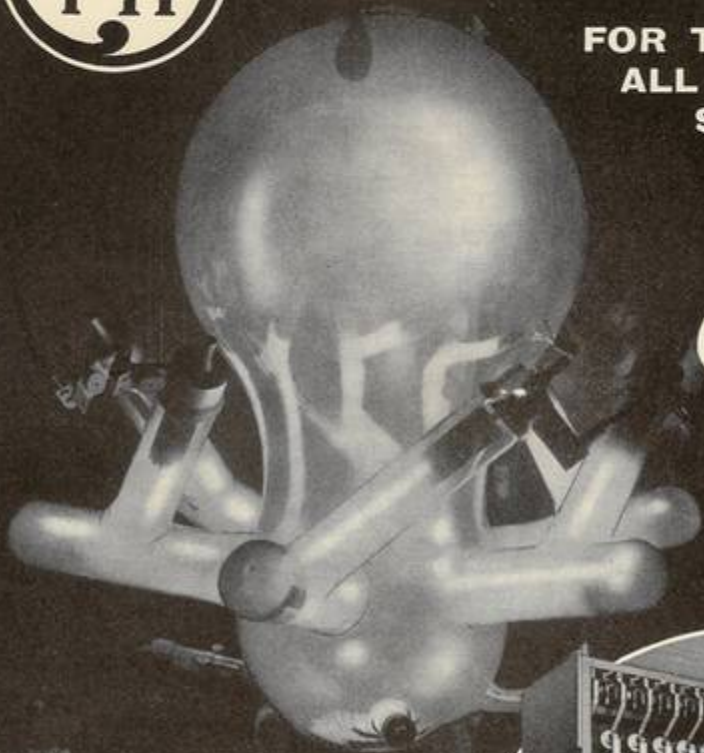
Head Office:

85, Cannon St., London, E.C.



RECTIFIERS

FOR TRACTION AND
ALL INDUSTRIAL
SERVICES



*Glass
Bulb
Type*

Entire Equipments,
including Glass Bulbs,
made in BTH Factories

*We manufacture ALL Types
of Glass Bulb and
Steel Tank Rectifiers.*



Glass Bulb Rectifiers
installed at
Dudley Hill Substation,
Bradford Corporation.

BTH

RUGBY

THE BRITISH THOMSON-HOUSTON COMPANY LIMITED, RUGBY, ENGLAND.

A 2590





Elihu Thomson died on his estate in Swampscott, Massachusetts, in 1937. His house was designated a U.S. National Historic Landmark in 1976.



The Elihu Thomson House, now U.S. National Historic Landmark

APPENDIX I: SOME THOMSON AMERICAN PATENTS

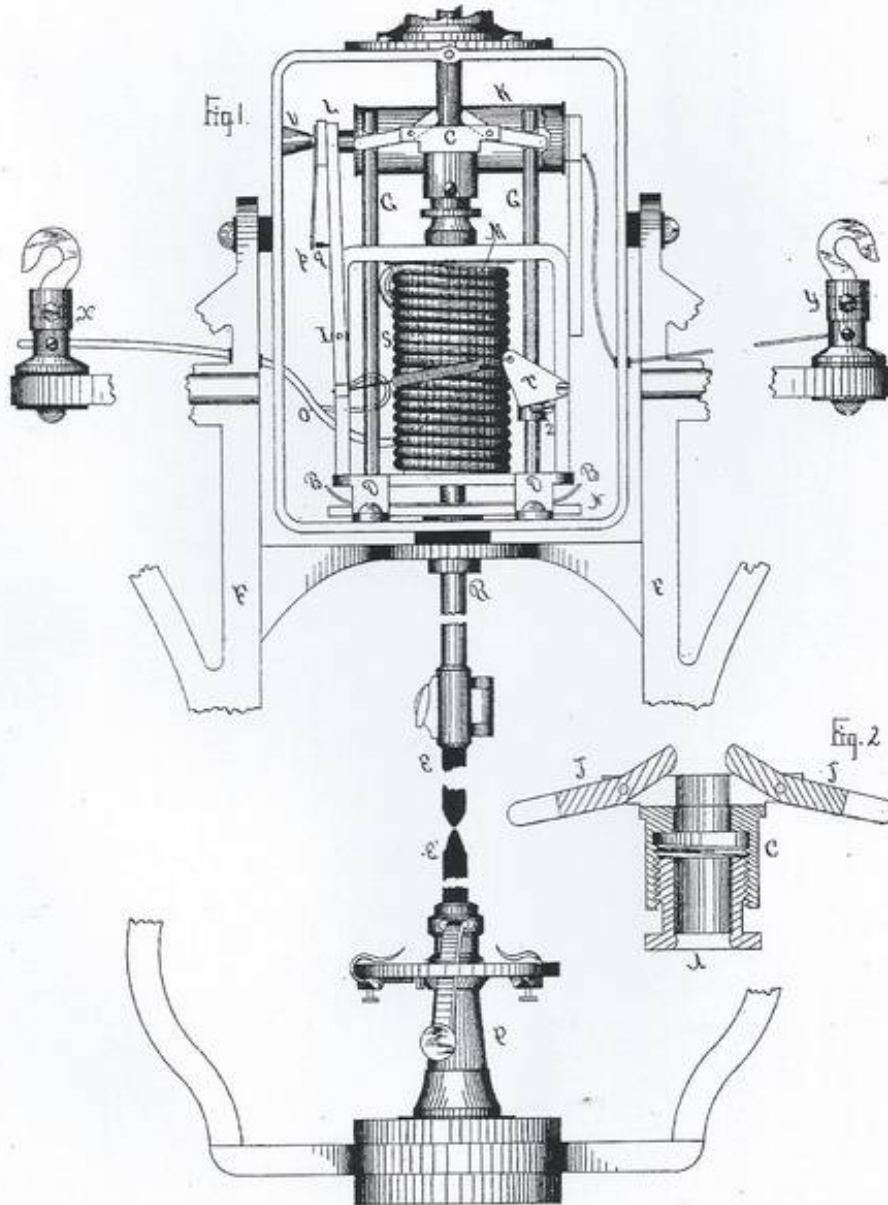
(No Model.)

3 Sheets—Sheet 1.

E. THOMSON.
ELECTRIC ARC LAMP.

No. 261,790.

Patented July 25, 1882.



Witnesses
W. B. Thomson
J. W. Churchill.

Inventor
Edwin Thomson

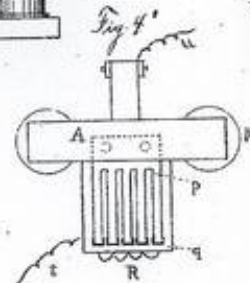
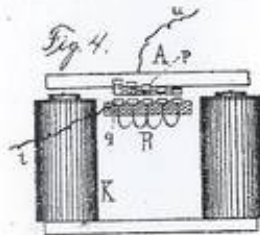
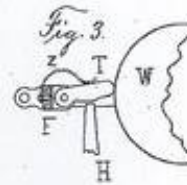
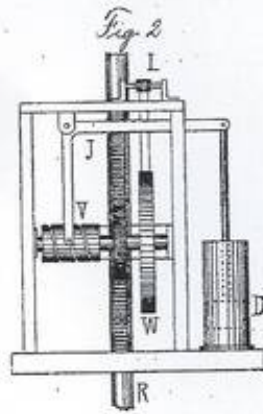
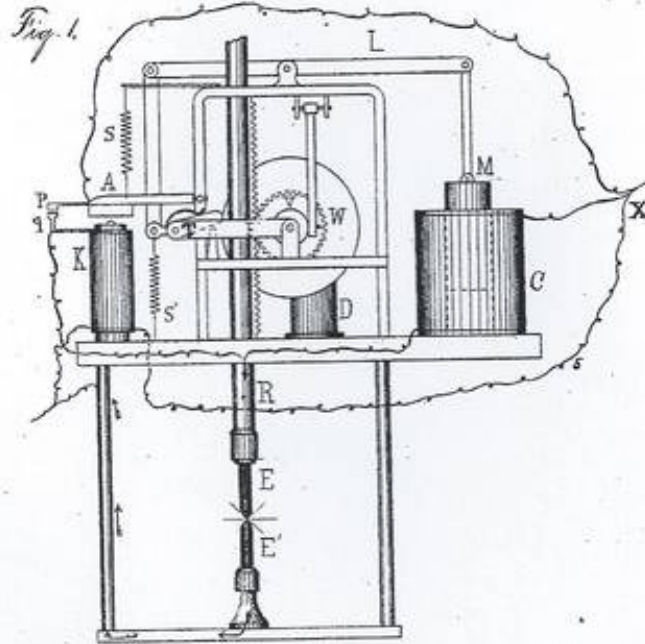
(No Model.)

2 Sheets—Sheet 1.

E. THOMSON.
ELECTRIC LAMP.

No. 283,437.

Patented Aug. 21, 1883.



Witnesses
H. B. Thomson
E. W. Rice.

Inventor,
E. Thomson.

(No Model.)

2 Sheets—Sheet 1.

E. THOMSON.
ELECTRIC ARC LAMP.

No. 297,200.

Patented Apr. 22, 1884.

Fig. 1,

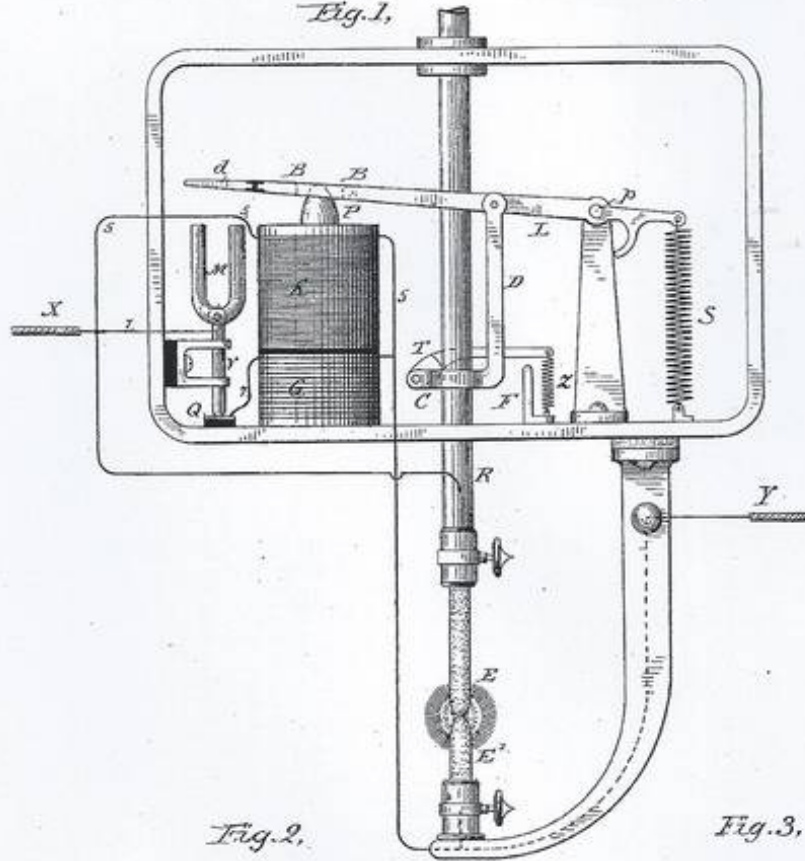


Fig. 2,

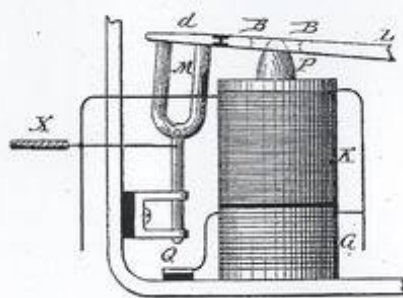
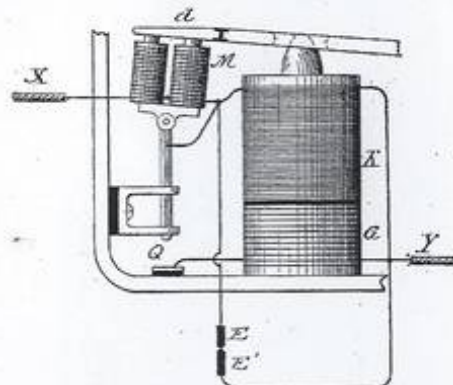


Fig. 3,



Witnesses:
Ernst Abshagen
Thos. Doney

Inventor:
Elihu Thomson
By his Attorney: H. B. Townsend

(No Model.)

2 Sheets—Sheet 1.

E. THOMSON.
REGULATOR FOR DYNAMO ELECTRIC MACHINES.
No. 302,963. Patented Aug. 5, 1884.

Fig. 1.

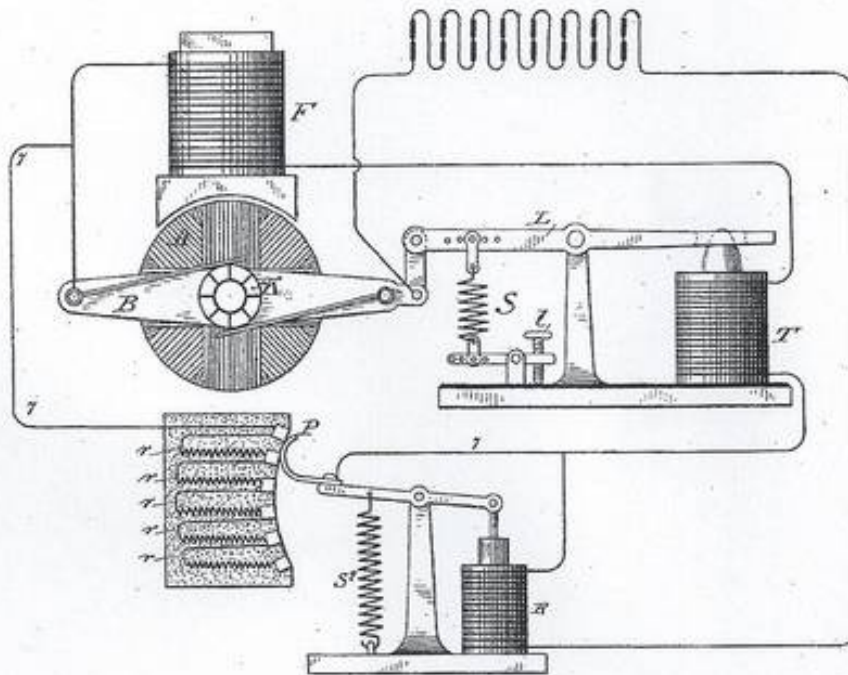
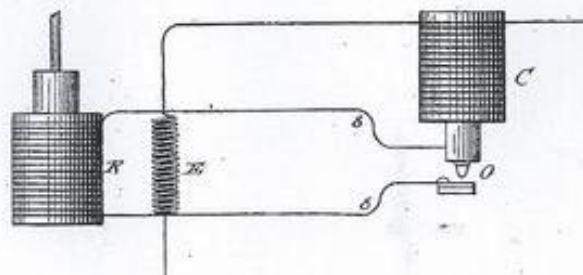


Fig. 2.



Witnesses:

Ernst Abtstagen
Chas. Dornay

Inventor:

Elihu Thomson

By his Attorney

H. C. Townsend

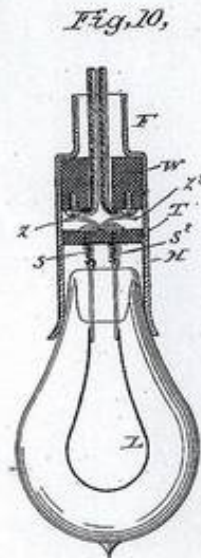
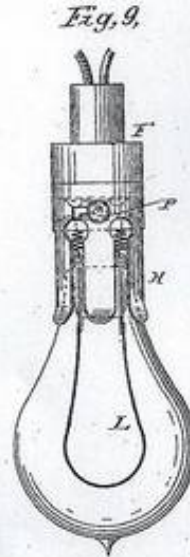
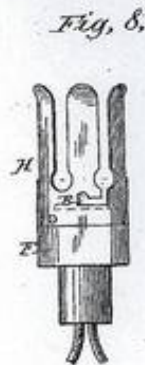
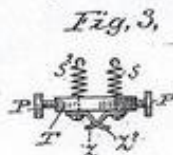
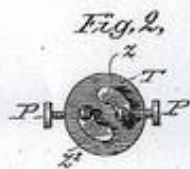
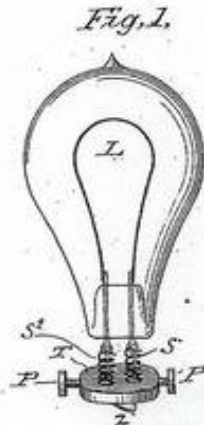
(No Model.)

E. THOMSON & E. W. RICE, Jr.

HOLDER FOR INCANDESCENT LAMPS.

No. 344,692.

Patented June 29, 1886.



Witnesses:
Adolphus Spandrich
Chas. Dimey

Inventors:
Elihu Thomson
E. W. Rice, Jr.,
By their Attorney: H. C. Townsend

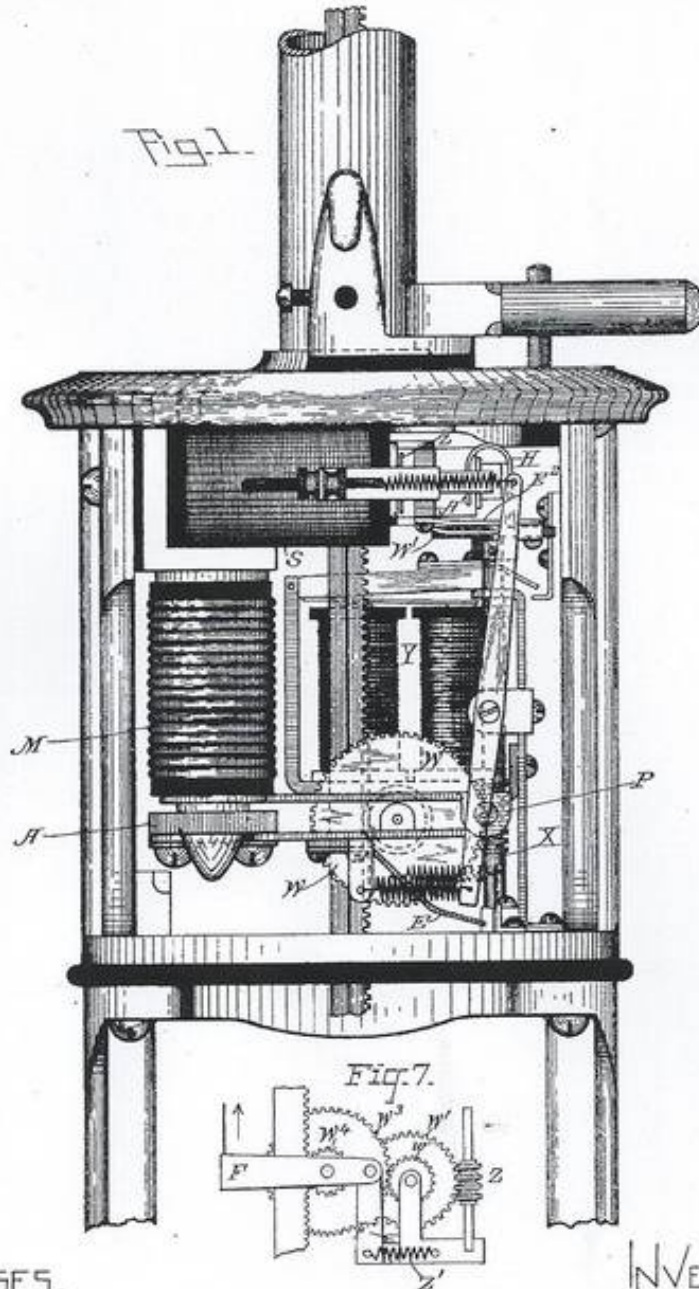
(No Model.)

3 Sheets—Sheet 1.

E. THOMSON.
ELECTRIC ARC LAMP.

No. 461,144.

Patented Oct. 13, 1891.



WITNESSES.
A. F. McDonald
J. M. Keapel

INVENTOR.
Elihu Thomson
BY *H. B. Townsend*
Attorney

(No Model.)

2 Sheets—Sheet 1.

E. THOMSON.
ELECTRIC LIGHTING SYSTEM.

No. 508,647.

Patented Nov. 14, 1893.

FIG. 1.

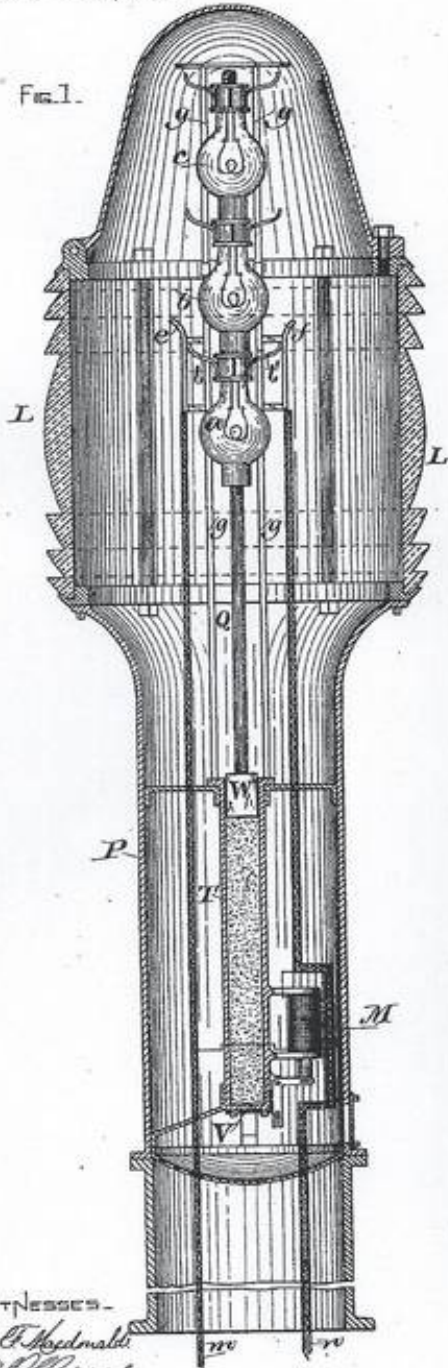


FIG. 2.

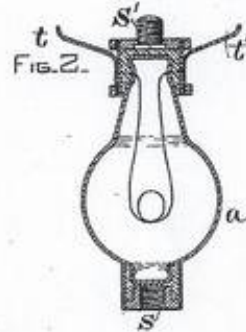


FIG. 3.

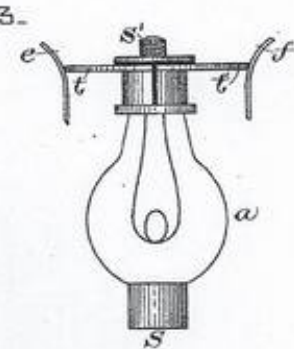


FIG. 4.

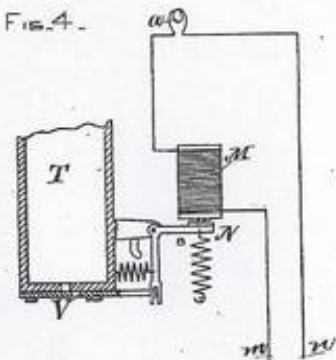


FIG. 7.



Witnesses.
A. P. Woodmable
A. L. Lewis

INVENTOR.
E. Thomson
By B. B. Knight
Atty.

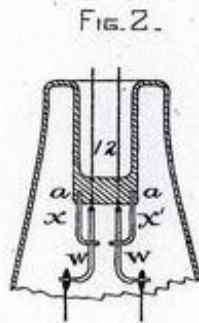
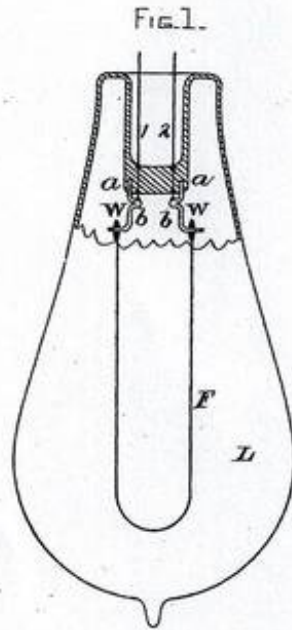
(No Model.)

E. THOMSON.

LEADING-IN WIRE FOR INCANDESCENT LAMPS.

No. 508,659.

Patented Nov. 14, 1893.



WITNESSES.
Alex. F. Schmidt.
R. J. Hayes.

INVENTOR.
E. Thomson
by *Bentley & Bleditt*
Atty

E. THOMSON.
INCANDESCENT LAMP.
APPLICATION FILED OCT. 12, 1908.

980,703.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

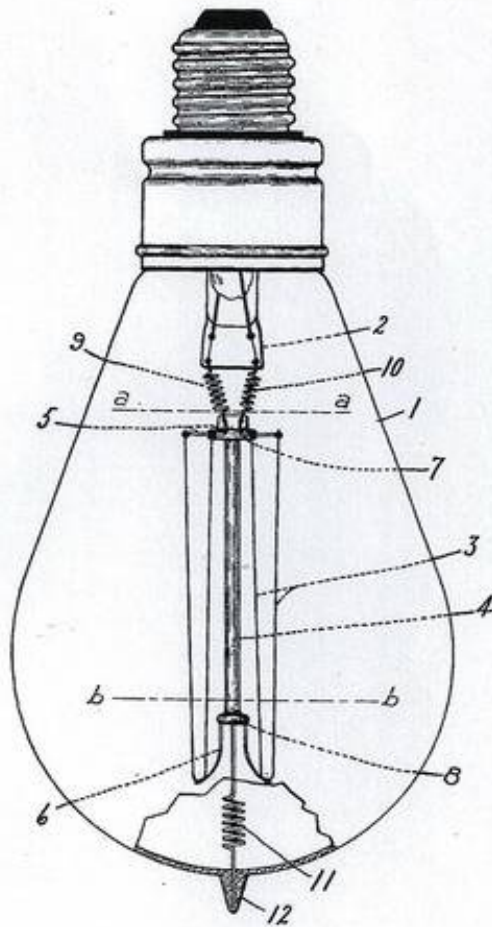


Fig. 2.

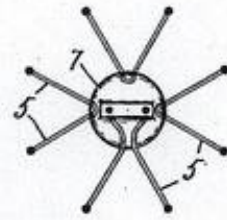
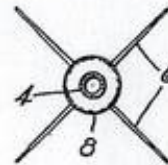


Fig. 3.



Witnesses:

J. Ellis Egan
J. Earl Ryan

Inventor,
Elihu Thomson,
by *Albany Davis*
Att'y.

E. THOMSON.
INCANDESCENT LAMP.
APPLICATION FILED OCT. 12, 1908.

980,703.

Patented Jan. 3, 1911.

2 SHEETS-SHEET 2.

Fig. 5.

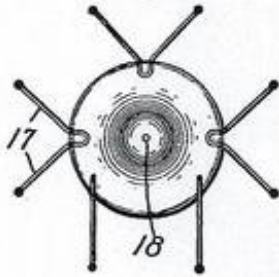


Fig. 6.

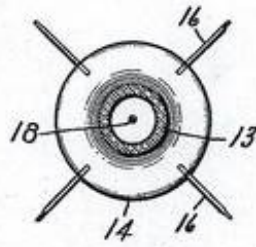
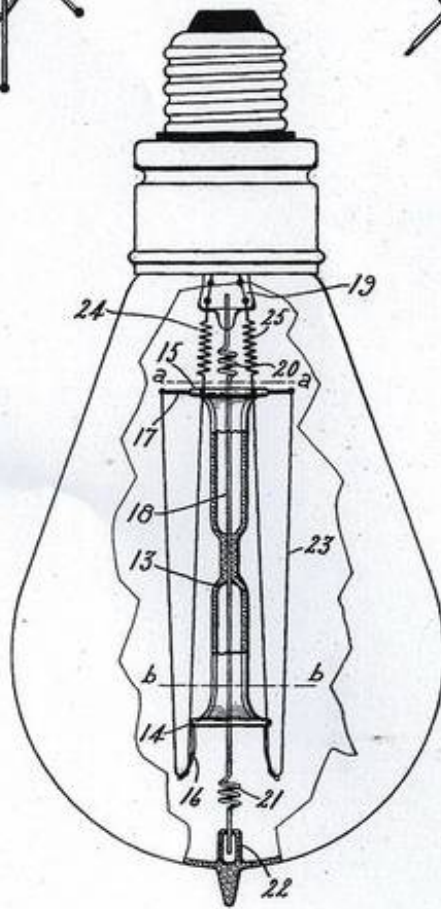


Fig. 4.



Witnesses:
J. Ellis Elen
J. Paul Ryan.

Inventor,
Elihu Thomson,
by *Albert H. Davis*
Att'y.

APPENDIX II: EXTRACT FROM THE THOMSON-HOUSTON
ELECTRIC COMPANY CATALOGUE of 1890

Form B 5-7500

THE
THOMSON-HOUSTON
ELECTRIC
COMPANY

MANUFACTURER OF

ELECTRICAL APPARATUS

DYNAMOS FOR ARC AND INCANDESCENT LIGHTING

ARC AND INCANDESCENT LAMPS

ELECTRIC RAILWAY APPARATUS

STATIONARY MOTORS

ELECTRIC LIGHTING AND POWER

SUPPLIES

BOSTON, DECEMBER 1, 1890

INCANDESCENT LIGHTING ON ARC LIGHT CIRCUITS

SERIES INCANDESCENT LAMPS



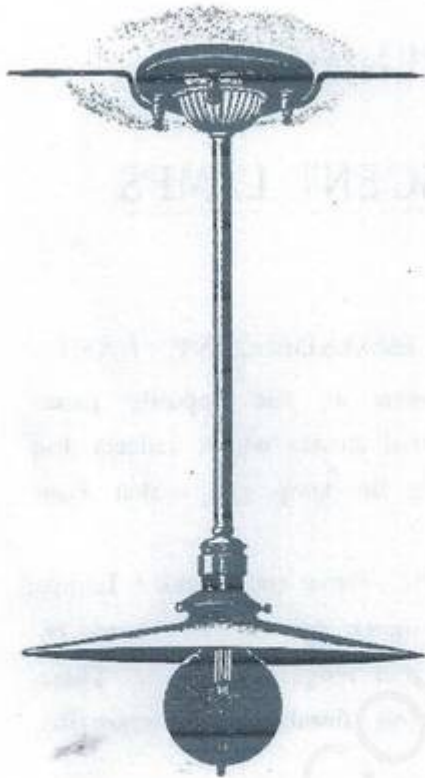
IN INCANDESCENT LIGHTING there frequently occur situations such as stores, halls, and public enclosures, which it is often desired to illuminate by incandescent lamps, without the necessity of running a circuit from a separate dynamo. To meet this requirement, incandescent lamps are placed in the lighting circuit directly in series with arc lamps of 1,200 or 2,000 candle-power.

They are provided with an automatic cut-out, which furnishes a path for the current, and prevents an open circuit in case the filament breaks. These lamps are denominated "Star" and "Crescent," the former being used on 1,200 candle-power circuits, and the latter on circuits of 2,000 candle-power.

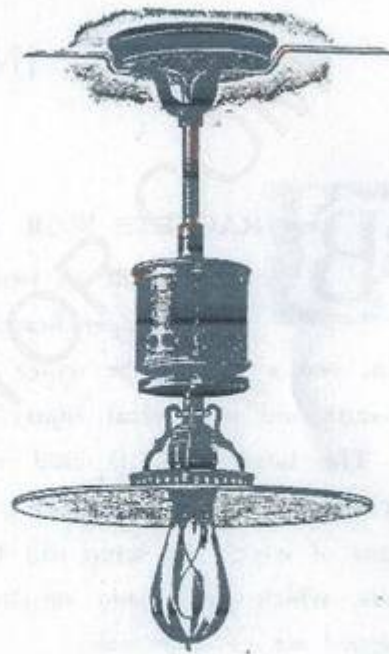
They are made of 20, 25, 32, 65 and 125 candle-power. The facility with which both arc and incandescent lamps can be operated from the same dynamo and upon the same circuit, is one of the most important features of this system. By its use it is possible for local electric lighting companies to supply both forms of light in a great variety of candle-power, without employing a separate dynamo. These advantages are equally as great in the case of isolated plants. The Thomson-Houston Electric Company is the owner of all the fundamental patents for the automatic cut-outs used in series incandescent systems.

INDIVIDUAL DISTRIBUTORS

What are known as Individual Distributors are sometimes used where it is desired to maintain a group of incandescent lamps on arc light circuits. When such is the case, lamps are placed in groups of five on the 1,200 candle-power circuit, or eight on the 2,000 candle-power circuit, an equal amount of current passing through each one. Each lamp has its own individual cut-out, consisting of a resistance which is automatically thrown into circuit as a substitute for the filament itself, and which provides for an excess of current in the other lamps, when one of a group is broken or turned off.



SERIES LAMP



INDIVIDUAL DISTRIBUTOR



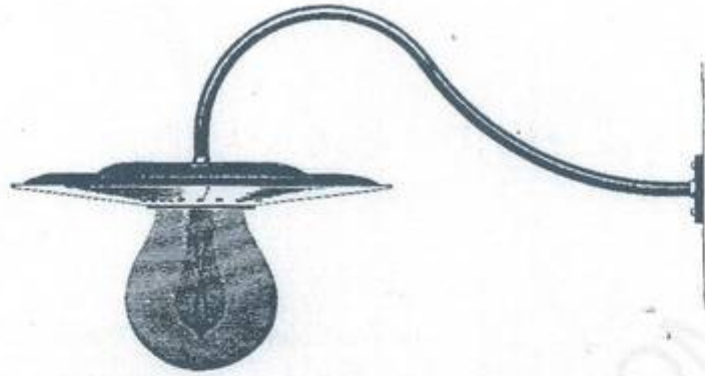
BRACKETS FOR SUSPENDING INCANDESCENT LAMPS



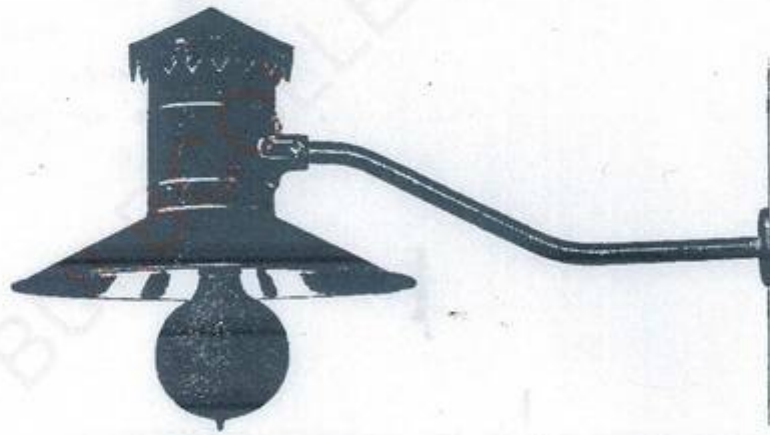
BRACKETS FOR USE WITH INCANDESCENT LAMPS are made in two forms as shown on the opposite page. The upper bracket has an inverted shade, which reflects the light, and a glass globe which serves to protect the lamp and socket from moisture and mechanical injury.

The lower hood is used in connection with Series Incandescent Lamps and is provided with a cut-out, placed in the upper part of the hood, by means of which the lamp can be extinguished and relighted at will. These hoods, which are made of tin, are strong and durable, and especially designed for out-door use.





SHADE AND PROTECTOR



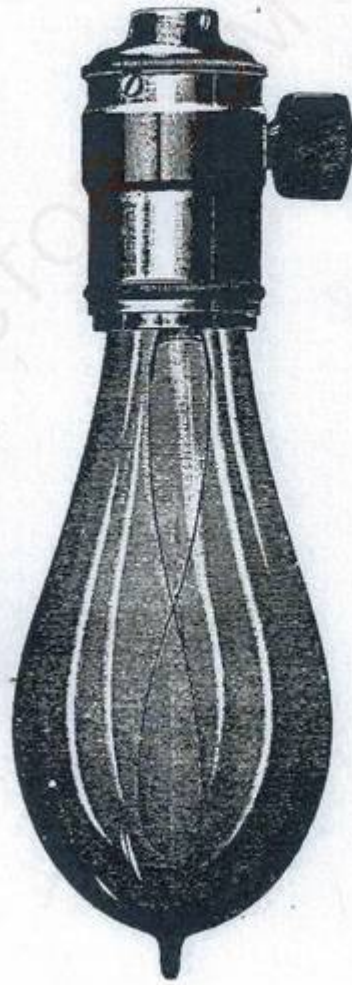
HOOD FOR SERIES LAMPS

INCANDESCENT LAMPS



THE INCANDESCENT LAMPS used with the Thomson-Houston Dynamo for Incandescent Lighting are superior in many respects to lamps of other makes, being manufactured under the well known Sawyer-Man patents. Owing to a special method of treatment during the process of manufacture, used only by this company, the carbon filament, though similar to that used by other manufacturers, gives this lamp superior advantages. It has a distinctive form, a quarter turn being given to it, which permits an equal radiation of light in all directions. Under repeated tests the life of these lamps has greatly exceeded the guaranteed number of hours, and at the same time they maintain a uniform candle-power without blackening of the bulb. They are made for long-distance incandescent lighting, using the Transformer System; for use with Distributors; in series on Arc Lighting circuits and for Direct Current Lighting by low-tension currents.





BIBLIOGRAPHY

1890 *Thompson-Houston Electric Company (Electrical Apparatus)*, Catalogue, Boston, 1st December

1924 *Kelvin Medal awarded to Elihu Thomson*, Journal, AIEE: February

----- *Elihu Thomson*, US Patent Office Records

<https://en.wikipedia.org/wiki/Elihu-Thomson>

<https://en.wikipedia.org/wiki/Thomson-Houston-Electric-Company>

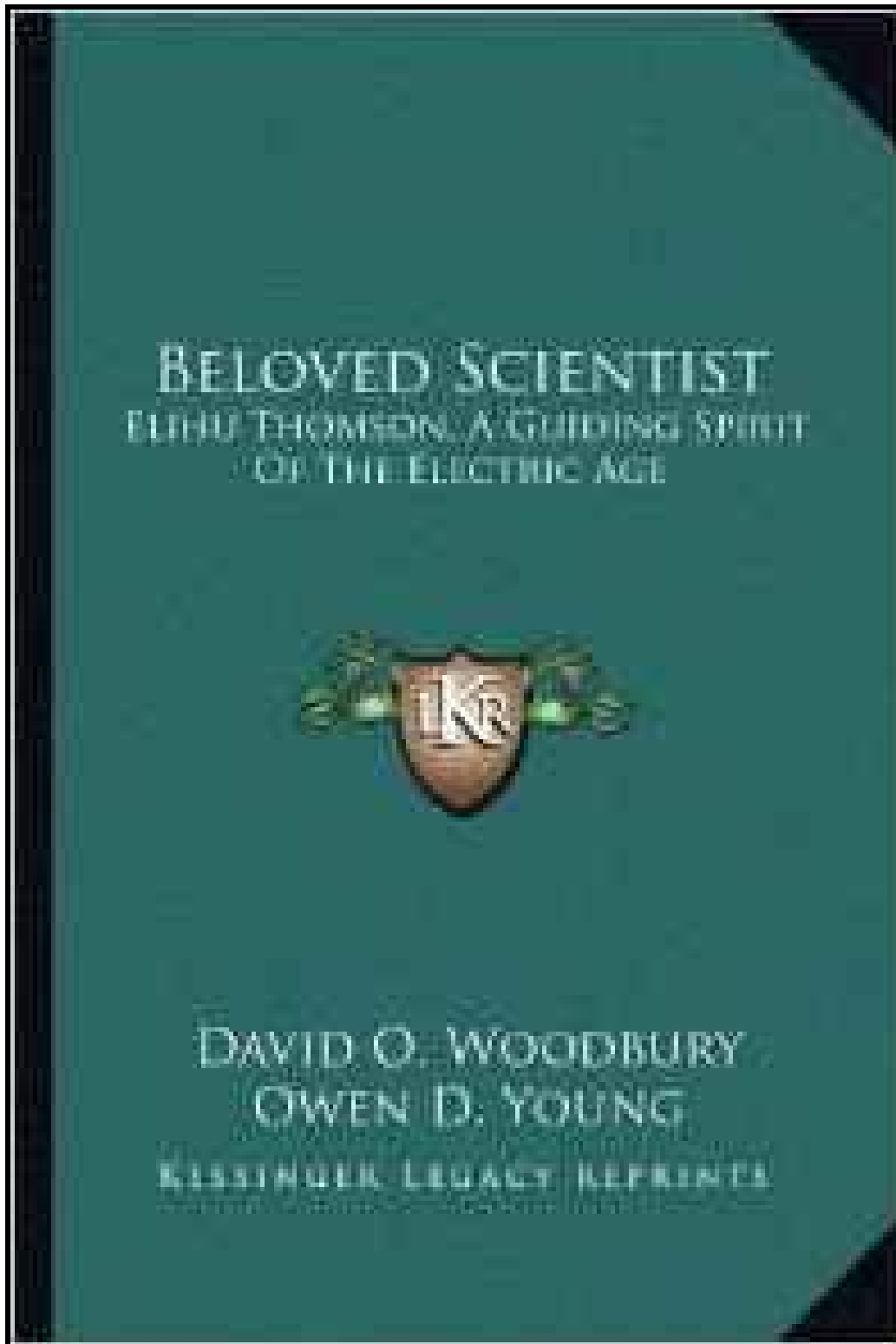
<http://www.gracesguide.co.uk/BTH>

<http://vintagemachinery.org/mfgindex/detail.aspx?id=3085>

<http://bulbcollector/paper/thomhous.pdf>



FURTHER READING



2010

EPILOGUE



Elihu Thomson with other electrical pioneers

In later life, Thomson was showered with awards. In 1889, he was decorated by the French Government for his electrical inventions, being made Chevalier et Officier de la Legion d'honneur. He received an honorary degree from Yale (1890), a Ph.D from Tufts College (1892), a D.Sc from Harvard (1899) and was the first recipient of the Edison Medal of the American Institute of Electrical Engineers (1900). His other awards included the Rumford Medal (1902), the Hughes Medal of the Royal Society (1916), the John Fritz Gold Medal, the Franklin Medal, the Elliot Cresson Medal and the Kelvin Gold Medal (1923). Elihu Thomson died in 1937.

Dr Thomson was President of the AIEE (1889-90), a founding member and 2nd President of the International Electrotechnical Commission and went on to serve as Acting President of MIT (1920-23). He was a member of many British Institutions: the Institution of Civil Engineers, the British Association for the Advancement of Science, and the Institution of Electrical Engineers of which he was an Honorary Member.

His second wife, Clarissa Hovey Thomson, is reported to have said that she needed a basket to carry all of her husband's awards and honours.



Grave of Dr Elihu Thomson



Thomson at his desk