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RARE BOOKS AND MANUSCRIPTS DIVISION
ACCESSION SHEET

Accession # *88 M 28

Location 3-e/h-i/6 (L)
Charter case
bun rack

Title FRANK J. SPRAGUE. PAPERS.

Approximate inclusive dates 1874-1939

Date of receipt 1935-1939

Received from

Volume on arrival 110 boxes; 68 pkgs.; 161 vols; 3 slipcases

Number of boxes (after reboxing) 43 RC; 35 AB; 60 vols./sc.; 6 CF; 5 FB (oversize);
Charter case folders 100 Linear feet

Condition fair-poor. Papers are particularly dirty, blueprints esp. quite brittle and already
quite damaged; many paper clips; extensive refolding necessary

Restrictions
n.a.
Description

see attached sheets

Special Formats Photographs Maps Audio Tapes Films Graphics
 Artifacts Machine-readable records
 Other (list) blueprints, engineering drawings

Temporary catalog card added entries

see attached sheet

Accessioned by MY

Date July 1988

Biographical Sketch

Frank Julian Sprague (1857-1934) engineer, inventor, and "father of electric traction," was born in Milford, Connecticut and raised in North Adams, Massachusetts. He graduated from the U.S. Naval Academy in 1878 and served in the Navy until 1883 when he resigned his commission to work for Thomas Edison. Unhappy with the Edison Company's focus on the development of electric lighting, Sprague left the following year to found the Sprague Electric Railway and Motor Company, the first of several companies he organized to develop and exploit his inventions. He became nationally renowned in 1887 for the creation of the world's first city-wide electric streetcar system for the Richmond Passenger Railway of Richmond, Virginia. This was followed in 1892 by the invention of the first automatic electric elevator, and in 1897 by the creation of the "multiple-unit system" for electric railroads. First installed on the Chicago South Side Elevated Railway, the multiple unit system made high-speed urban and suburban mass transit possible. Trains which had formerly been made up of a locomotive pulling at most four passenger cars were replaced by trains composed of unlimited numbers of motorized cars controlled by a master switch, resulting in faster, more flexible service, with much greater passenger capacity. This patented system was exploited by the Sprague Electric Company until the firm was absorbed by the General Electric Company in 1902.

Sprague undertook considerable consulting work as well. He was a member of the Electric Traction Commission which directed the electrification of the New York Central Railroad's main line and Grand Central Terminal, 1902-1906, and the Naval Consulting Board, 1915-1922. During World War I he worked on the improvement of depth charges and fuses. After the war he turned his attention to a field that had begun to interest him before the war, the development of automatic safety devices for railroads. In 1922 the Interstate Commerce Commission began to require that major railroad companies install safety systems that would automatically control the train if the engineer did not comply with roadside signals. The Sprague Safety Control and Signal Corporation was one of the first companies to install and test these devices, most notably on the New York Central Railroad and the Great Northern Railway. However, Sprague was never as successful in this area as in his earlier endeavors. He received many awards for his achievements, including the Gold Medal of the Paris Exhibition of 1889, the Elliott Cresson Medal (1904) and the Franklin Medal (1910) of the Franklin Institute, the Grand Prize of the St. Louis Exhibition (1904), the Edison Medal of the American Institute of Electrical Engineers (1910), and the John Fritz Medal of the Founder Engineering Societies (1934).

Description

The Frank Sprague Papers, 1874-1939, document his career as an inventor and engineer in the field of rail transportation from his days as a U.S. Naval Academy cadet until his death in 1934. The papers consist chiefly of his correspondence and the business records of his companies, the Sprague Electric Railway and Motor Company, Sprague Electric Company, Sprague Electric Elevator Company, Socié'te' Française Sprague, and Sprague Safety Control and Signal Corporation. The company records, 1884-1933, include correspondence, memoranda, technical reports, blueprints, diagrams, photographs, patent applications, patent interference case files, and laboratory and shop records. His work as a consulting engineer and his participation in several professional organizations are also documented, particularly his work for the Electric Traction Commission of the New York Central Railroad, 1902-1906, and for the U.S. Naval Consulting Board, 1915-1923. The papers also include copies of his speeches and writings, personal notebooks, numerous scrapbooks of clippings and printed material about his inventions and rail transportation in general, and a small series of personal papers including personal and household correspondence, portraits, genealogical material on the Sprague family, ephemera, tributes, and awards.

The GENERAL CORRESPONDENCE spans Sprague's career from 1874-1934. Some of the earliest letters were written by Sprague to his future (second) wife Harriet Chapman Jones. However, most of the correspondence concerns his businesses and inventions. The series is arranged chronologically and, particularly in the early years, contains non-correspondence as well. It should be noted that there are also significant accumulations of correspondence outside of this series. Researchers interested in particular aspects of Sprague's career should be sure to consult this series as well as series relating to particular companies or activities. Correspondents include Sprague's co-workers and railroad and electric company officials, including Thomas Edison.

The LETTERBOOKS, 1883-1902, consist of eleven volumes of letterbooks beginning with his work for the Edison Company and ending with the absorption of the Sprague Electric Company by General Electric in 1902. (The years 1886, 1887, and 1890 are not covered). Two of the letterbooks of the Sprague Electric Railway and Motor Company were kept by F.H. Parshall, who, like Sprague, worked for both the Edison Company and Sprague.

SPRAGUE ELECTRIC RAILWAY & MOTOR CO./SPRAGUE ELECTRIC CO., 1883-1911. This section contains correspondence, business papers, technical reports, drawings, blueprints, photographs, and patent papers created in the course of Sprague's work for these companies, and that undertaken both before the formal creation of these companies and after their dissolution. They relate primarily to the development and exploitation of Sprague's electric streetcar system and the multiple-unit system in the

United States and abroad. Included are miscellaneous business, financial, and legal papers (contracts, agreements, lists of stockholders, articles of incorporation, extracts from meeting minutes); copies of Sprague patents, 1884-1904, and others bearing upon his work; patent applications and patent litigation papers; and multiple unit system installation project files. Railroads represented in the project files include the Boston Elevated Railroad, Brooklyn Elevated Railroad, Chicago South Side Elevated Railway, Great Northern and City Railway, Manhattan Railway Company, Metropolitan Railway (London), and the Southern Pacific Railway. The papers of the Societe' Française Sprague concern the exploitation of his multiple unit system patents in France.

SPRAGUE ELECTRIC ELEVATORS, 1890-1932. This section contains correspondence, memoranda, notes, bids, agreements, photographs, patent papers, circulars, and scrapbooks regarding the invention and marketing of the Sprague-Pratt push button electric elevator, 1890-1898, and the Sprague dual elevator system, 1926-1932. Included are papers documenting installations in the Central London Railway and the Adams Express Building, New York City. Additional material on Sprague's elevator work can be found in the two previous sections, since much of this work was done under the auspices of the Sprague Electric Company.

ELECTRIC TRACTION COMMISSION, 1902-1922. The Electric Traction Commission of the New York Central and Hudson River Railroad was responsible for overseeing the electrification of Grand Central Terminal and the railroad's main passenger lines into New York City. The papers include correspondence, 1902-1906, primarily between Sprague and William J. Wilgus, New York Central Vice President and Chief Engineer, minutes, reports, proposals, specifications and blueprints and photographs. This section also contains correspondence, patents, specifications and plans, blueprints and photographs, 1905-1922, concerning the Wilgus-Sprague collaboration on the third rail system created for the project.

NAVAL CONSULTING BOARD, 1915-1922 contains Sprague's records of his work for the civilian advisory board formed by Secretary of the Navy, Josephus Daniels, to provide engineering assistance to the Navy during World War I. The papers include correspondence, meeting minutes, committee reports, and scrapbooks, 1915-1923. Also in this section are letters, blueprints, notes, diagrams, sketches, and test reports documenting Sprague's work on fuses, depth charges, and projectiles, 1915-1922. Finally, there is Sprague's correspondence regarding the Navy Pay Bill, 1918-1920.

The records of the SPRAGUE SAFETY CONTROL & SIGNAL CORPORATION form the most extensive and complete section of Sprague's papers. The general correspondence, 1913-1933, contains letters to and from the American Railway Association (1921-1924), W.C. Burton (1920), Harold C. Cockerline (1914-1917), General Electric Company (1913-1920), the Interstate Commerce Commission (1915-1927), John P. Kelley (1916-1926), New York State Transit Commission (1922-1933), Public

Service Commission (1915-1924), and the U.S. Railroad Administration (1918-1920), as well as letters concerning the Railway Bill (1919-1920).

The correspondence of the Chicago Office, 1922-1927, consists of letters to F. Desmond Sprague from Frank Sprague and others, and copies of his replies. Additional correspondence can be found in two scrapbooks.

Included also are laboratory and shop test records, notebooks and daily work diaries of company engineers, and project files. The project files consist of correspondence with railroad companies, bids, contracts, and inspection reports on the installation of the Sprague automatic train control system on the New York Central, Great Northern, and other railroads. There are extensive patent and patent interference case records, minutes and other papers on Interstate Commerce Commission hearings on automatic train control, and eight scrapbooks of clippings and printed material.

PROFESSIONAL ACTIVITIES includes correspondence as a member and/or officer in the American Institute of Electrical Engineers (1906-1917), American Institute of Consulting Engineers (1912-1922), American Academy of Engineers (1909-1911), New York School of Applied Design, and correspondence regarding the licensing of Civil engineers (1911-1914).

WRITINGS & SPEECHES, 1889-1934, contains his formal speeches and articles followed by scientific and technical notes, memoranda, and sketches on numerous inventions, most of which do not concern railroads. Nineteen NOTEBOOKS (see attached list) contain scientific notes, accounts, diary entries, and sketches, 1887-1902.

The PERSONAL PAPERS contain portraits of Sprague, genealogical and biographical material, personal memorabilia, and photostats of the many letters of tribute sent to him from around the world on his 75th birthday.

Finally, the collection includes Sprague's CARD FILE BIBLIOGRAPHY and thirty-one SCRAPBOOKS of clippings on the multiple unit system and other railroad topics; many PHOTOGRAPHS documenting Sprague's career from preliminary work on the Richmond streetcar system through the first tests of the multiple unit system and the development of automatic train control, including photographs of his Watsessing, New Jersey plant, its staff, equipment, and products. OVERSIZE MATERIALS have been boxes separately at the end of the collection.

Over 200 volumes of Sprague Collection uncataloged printed material can be found in the Science & Technology Division, with classmark VDCS and VDCS+ (see attached list).

FRANK J. SPRAGUE PAPERS

Container List

Box/Volume

I. GENERAL CORRESPONDENCE

- | | |
|---|---------------------------------------------------------------------------------------------|
| 1 | 1874-1898 |
| 2 | 1899-1904 |
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| 5 | 1918-1924
1925-1929 A-N |
| 6 | 1925-1929 O-Z
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Personal correspondence, 1905-1933
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II. LETTERBOOKS, 1883-1902

- | | |
|----|---------------------------------------------------------------------------------------------------------------------|
| 7 | Edison Company, 1883 Sept. 5 - 1884 Apr. 25
Sprague Electric Railway & Motor Company
1884 May 3 - 1886 Feb. 3 |
| 8 | 1888 Nov. 7 - 1889 Aug. 21
(Parshall's "in letters") |
| 9 | 1889 July 18 - Aug. 21
(Parshall's "letters out") |
| 10 | Sprague "Personal" Letterbooks
1888 June 15 - 1889 June 10 |
| 11 | 1889 June 10 - Oct. 29 |
| 12 | 1891 Dec. 23 - 1894 Apr. 5 |
| 13 | 1894 Apr. 6 - 1896 Jan. 23 |
| 14 | 1896 Jan. 24 - 1899 Mar. 16 |

II. LETTERBOOKS, cont'd.

- 15 Sprague Electric Company
1899 Mar. 16 - 1900 June 11
- 16 London cables, 1901 June 20 - 1902 Sep. 16
- 17 London letterbook, 1901 May 28 - Aug. 2

III. SPRAGUE ELECTRIC RAILWAY & MOTOR CO./
SPRAGUE ELECTRIC COMPANY

- 18 Business, financial, legal papers
- 19 Sprague patents, 1884-1904
Other U.S. patents (by name of inventor) A-Si
- 20 Other U.S. patents, Sm-Z
Other U.K. patents
- 21-23 Multiple unit system patent papers and
patent litigation papers
- 24-25 Unsorted correspondence, blueprints, diagrams,
memoranda, specifications, proposals, and
engineering data, chiefly regarding the multiple
unit system. Includes photoprints of Sprague's
Watsessing, New Jersey plant and the
equipment, parts, and products produced
- 26 Scientific and technical reports
- 27 Multiple unit system installation project files
Boston Elevated Railroad - Southern Pacific
Railway
- 28-29 Southern Pacific Railway
- 30 Sociéte Française Sprague, 1899-1911
- 31 IV. SPRAGUE ELECTRIC ELEVATORS, 1890-1932
Sprague Electric Elevator Company, 1890-1898
- 32 Dual elevator system, 1926-1932
Scrapbook re Sprague-Pratt electric elevator
and dual elevator system, 1894-1931

V. ELECTRIC TRACTION COMMISSION

- 33 Correspondence, minutes, reports, proposals,
blueprints, specifications, etc., 1902-1906
Wilgus-Sprague Standard Third Rail, 1905-1906
- 34 Wilgus-Sprague Standard Third Rail, 1907-1922

VI. NAVAL CONSULTING BOARD, 1915-1922

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- 38 Scrapbook, 1915 December - 1918 October
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- 40 Oversize illustrations
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- 42 Scrapbook, 1917-1918 (depth charge)
- 43 Scrapbook, 1917-1922 (depth charge)
- 44 Navy Pay Bill correspondence, 1918-1920

VII. SPRAGUE SAFETY CONTROL & SIGNAL CORP.

- 45 General Correspondence, 1913-1933
- 46 Correspondence of the Chicago Office, 1922-1927
- 47 Scrapbook of correspondence regarding the
adoption of automatic train control devices,
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- 48 Scrapbook of drawings, sketches, memoranda,
and correspondence between Frank J. Sprague
and his son, F. Desmond Sprague regarding
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VII. SPRAGUE SAFETY CONTROL & SIGNAL CORPORATION, cont'd.

- 49 Original sketches and notes
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- 50 Book 2 1913 November - 1914 April
- 51 Book 3 1914 April - 1915 November
- 52 Book 4 1915 October - 1919 June
- 53 Book 5 c.1913 - 1914 Annotated schematic diagrams with explanatory text
- 54 Book 6 1912 - 1914 Description of apparatus. Original drawings with explanatory text
- 55 Shop records, 1914-1920s
- 56 Laboratory records, 1921-1928. Records of tests. Recorder diagrams, 1912-1916.
- 57 Engineering notebooks of Desmond Sprague, Chief Engineer (1922-1923); W.L. Hauck (1922); F.M. Shannon (1923).
- Daily work diaries of Junghaus, et al. (1925-26)
- Correspondence with railroad companies/
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- 58 Atchison, Topeka & Santa Fe - Northern Pacific
- 59 Northern Pacific - Union Pacific
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- 61-62 New York Central Railroad
- 63 Unsorted papers re automatic train control
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- 64-65 Printed material

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- 66 Blueprints, drawings, diagrams, etc.
- 67 Interstate Commerce Commission Hearings
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- 68 Stenographer's minutes, 1924 May 15-
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Sprague Safety Control & Signal Corp. v.
New York Central Railroad and General
Railway Signal Co.)
- 69-71 Unsorted material re hearings
- Patents and Patent Interference Cases
- 72 Correspondence with patent attorneys
Dorsey & Cole, 1914-1922
- 73 Dorsey & Cole, 1922-1930
- 74 Thomas Ewing, 1922-1932
- 75 Sprague's notes re patent cases
- 76 Sprague Automatic Train Control System,
patent applicaton, ser. no. 879,939. Filed
December 31, 1914. Drafts, corrected
copies, amendments
- 77 Ser. no. 879,939 Divisional application,
claims, references.
Applications for other of his train control
devices
- 78 Sprague's British and continental patent
applicatons
- 79 *General Railway Signal Co. v. Great
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Correspondence, typescripts of testimony,
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- 80 Printed briefs, 1927-1930

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	#44,963	Sprague v. Howe
	#45,681	Sprague v. Howe v. Clifford
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	#46,773	Brewster v. Sprague
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- 85 Bushnell File Wrapper 596,102
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- 86 Work patents 132,972; 807,853; 869,555
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- 88 Printed briefs for patent interference cases
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Scrapbooks

- 90 Flyers, reprints, and brochures regarding
automatic safety control systems of various
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- 91 Clippings
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- 92 1913-1919
- 93 1919-1922
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- 96 1926-1927
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- 98-99 Duplicate material to be sorted

- 100 VIII. PROFESSIONAL ACTIVITIES
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 turbines with slow speed propeller (1909); two
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 miscellaneous sketches and drawings, (1906-1907);
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- 105 X. NOTEBOOKS, 1887-1902 - see attached list

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XII. CARD FILE BIBLIOGRAPHY

- 108 Multiple Unit System, A-G
109 Multiple Unit System, H-R
110 Multiple Unit System, S-Z
111 Railroad Electrification, etc., A-G
112 Railroad Electrification, etc., H-O
113 Railroad Electrification, etc., P-Z

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- 114 Personal clippings, 1900-1914
- 115 Personal clippings, 1915-1924. (A few letters pasted in, incl. two from Josephus Daniels).
- 116 Personal clippings and memorabilia, 1923-1933. (some letters pasted in).
- 117 Articles and addresses by Sprague on electric motors, electric railways, urban rapid transit, London underground, and misc. clippings on electric railways, 1885-1905
- 118 Articles by Sprague on the multiple unit system and electric elevated railways, 1894-1905. (A few typescripts are included).
- 119 Clippings re Sprague Electric Railway and Motor Company, 1884-1887.
- 120 Electric railways, 1886-1897
- 121 Municipal electric railway systems, 1889-1890. (many references to Sprague Electric Railway & Motor Co.).
- 122-123 Electrification of municipal transport systems; improvements in military and naval ordnance, 1890-1892. (many clippings regarding the failure of Cyrus W. Field's firm of Field, Lindley, Weichers & Co.).
- 124 Clippings, pamphlets, flyers, diagrams, test reports, manufacturer's specifications regarding municipal power and lighting systems, railway electrification, ca. 1891-1894.
- 125 Electrification of railroad systems, esp. urban rapid transit lines, 1893-1927.
- 126 Clippings, circulars, reprints re electric railways, municipal elevated railways, 1898.

SCRAPBOOKS, cont'd.

- 127 Clippings re performance of electric elevated trains, esp. in New York and Chicago; the use of multiple unit system; train wrecks, 1899-1911.
- 128 Clippings re history and development of the electric street railway systems in the U.S., ca. 1899-1911 (includes many references to Sprague).
- 129 Electrification of the New York, New Haven & Hartford Railroad and the New York Central & Hudson River Railroad, 1900-1912 (includes question of a.c. vs. d.c.).
- 130 Sprague multiple unit system and electrification of urban transit systems in the U.S. and abroad, 1901 January - May.
- 131-132 Clippings, 1901 (mainly electric tramways).
- 133 Clippings, 1902 (mainly electric tramways).
- 134 Electrification of railways abroad, 1902-1908.
- 135 Development of electric locomotive, electric railway motors, and railway systems, 1902-1912.
- 136 Clippings, 1903; 1905-1906.
- 137 Clippings, 1906-1909, re wreck of the Brewster Electric Express on the Harlem Division of the New York Central Railroad in 1907; electric railways.
- 138 Rapid transit problems in New York City, esp. controversy over the development of the Tri-Borough system.
- 139 Generation and transmission of electric power and its application to railway systems, 1910-1911.

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- 140 Electrification of railroad systems in the U.S.
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- 141 Military and naval preparedness, 1916-1917.
- 142 Military and naval preparedness, naval war
in the Atlantic, 1916-1921.
- 143 Electrification of steam railroads in the U.S.
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- 144 New York City transit matters, 1926-1927.
- 145 Unsorted loose clippings; maps
- 146 Unsorted loose clipping

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- 148 First multiple unit tests, Schenectady, N.Y.
Album of multiple unit equipment on various
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- 149 Electric traction and Dumont sugar refinery,
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Watsessing Plant, Sprague Electric Co., 1889
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Central London Railway elevators, 1897
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Great Northern Railway wreck, etc. 1910
- 150 New York Central Railroad; Chicago South Side
Elevated Railway; Misc.
- 151 Miscellaneous, mostly equipment

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- 152 New York Central Railroad automatic train control tests
- 153 Photo albums re automatic train control; Sprague Safety Control & Signal Corp.; unident. negs. of wavelenth recordings
- 154 Sprague Safety Control & Signal Corp. automatic train control

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- 156 Western Railway of France, 1901
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Original John Bull locomotive and train
- 157 Sprague multiple unit equipment
- 158 Sprague-Pratt electric elevator

XV. OVERSIZE MATERIALS

- 159 Miscellaneous blueprints
- Charter case Drawings for Sprague Electric Locomotive
- Mercator's map of Buzzard's Bay drawn by Frank J. Sprague, Class of '78, U.S. Naval Academy
- Broadside commemorating the birthday of the trolley started by Sprague at Richmond, Va., 1888.
- Blow-up facsimile copy of front page of the Subway Sun, Sept. 1919 showing picture of Sprague and excerpt from his testimony before the Federal Electric Railways Commission

XV. OVERSIZE MATERIALS, cont'd.

Charter case

Photographic copy of memento presented to Thomas A. Edison on his 65th birthday, 1912, showing him and his associates. Signed by Edison.

Note-books and pocket memoranda books in the Frank J. Sprague Papers:

Frank J. Sprague, notes on seamanship, with drawings of sail boat parts, and electrical equipment, 1877-1880.

Frank J. Sprague journal, while in the U.S. Navy, on a cruise from Boston to the Far East, 1878-1880.

Frank J. Sprague, "Record of Inventions", with accompanying drawings, 1882-1883.

Frank J. Sprague, notes and drawings, March - May, 1884.

Frank J. Sprague, note-book, with accompanying sketches, 1885; 1901.

Frank J. Sprague, scientific and financial note-book, 1886-1888; 1901.

Frank J. Sprague, note-book, scientific notes and memoranda for street railways, 1887-1889.

~~Complementary acquisition includes the following:~~

Frank J. Sprague, scientific note-book, with a few drawings, September - October, 1884.

Frank J. Sprague, scientific note-book, with drawings, October - November, 1884.

Frank J. Sprague, note-book containing memoranda on electric motors, some drawings, and business memoranda, 1885-86.

Frank J. Sprague, miscellaneous drawings, and some personal accounts, 1887.

Hurdle, J.A. Patent Office drawings for Sprague Electric Railway and Motor Co., September-October, 1888.

Frank J. Sprague, note-book, containing traveling expenses, and drawings, October-December, 1888.

Frank J. Sprague, scientific note-book, with pencil drawings, August, 1889.

Frank J. Sprague, memoranda book, 1902?

Frank J. Sprague, note-book, containing addresses, European travel expenses, and some scientific memoranda.

micro
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IN GENERAL RESEARCH DIVISION

VDCS in class marks
VDCS+

Descriptive list of the "n. c." volumes in the Frank J. Sprague Collection, being pamphlets, brochures, broken runs of periodicals, off-prints thereof, trade catalogues, and similar ephemera.

Vols.

- 1-8 Electrification of railways and equipment (incl. N.Y.C. & H.R.R, Gt. Northern)
- 9 Sprague Collection scrap-book (on N. Y. C. electrification, 1902).
- 10-24 On railway equipment, incl. air-brakes (17 is a G.E. catalogue for 1893 stock, 20 is on Baldwin loco's.)
- 25-29 Electrification of railways, cost studies & reports.
- 30-32 Electric Railway Journal, and similar periodicals.
- 33-38 Sprague Collection scrap-books on "els" and N. Y. City rapid trans.
- 36 Societa Italiana, souvenir picture album
- 37-39 Electrification of steam railways
- 40 Specifications for putting "m.u." on Manhattan Rwy.
- 41 Manual of electrics built by Amer. Loco. Co.,-pictures and data.
- 42-49 Prelim. & general specifications N. Y. Central electrification (one vol. on Detroit River tunnel)
- 50-56 " " " " " " " " " " " "
- 57 G. E. proposals on St. Clair tunnel (Montreal)
- 58 " " specifications for New Haven R. R. loco's.
- 59-63 Specifications for N.Y.C. & H.R.R. (60 being Westinghouse re. Westinghouse-Baldwin loco's)
- 64-72 On street railways and motors for them (misc. briefs, articles from journals, annual issues of Street Rwy. Journal to 1905)
- 73-82 Railway signals, incl. The Signal Engineer and successors, 1913-30.
- 83-91 New York City rapid transit, systems and problems, contracts, etc.
- 92 Detroit and Chicago rapid transit.
- 93-109 Sprague Elec. and Thomson-Houston suits over street rwys.
- 110-111 Sprague Collection scrap-books, 1923-34: misc., subways, t.v., etc.
- 112-116 A.I.E.E. reports and transacts., Electrical World, The Link, etc.

Frank J. Sprague Collection, "descriptive list of "n.c." vols.--- 2/

- 117-119 Agents circulars, catalogues re. street railway systems and transmission of electric current.
- 120 Franklin Institute official catalogue of 1884.
- 121-123 Thomson-Houston and Sprague Elec. booklets on transmission systems for power and light, transformers, interior conduit, etc.
- 124-126 Sprague Collection scrap-books on electric motors and misc., 1890-1929.
- 127 Daft system of electric power plants.
- 128, 129, G. E. publications, catalogues mainly.
- 131, 132.
- 130 Sprague Motors, early handbooks and manuals.
- 133-135 Telephonics, natural power resources, electro-thermic steel, etc.
- 136-137 Tran's and proc's, ASmechE., A.I.C.E. and like bodies.
- 138-139 Stone & Webster brochure, James Hunter Co. price list.
- 140 British patents on elec. & magnetism, Edison Co. reports 1880s.
- 141-142 Electric lifts and elevators.
- 143-145 Naval matters.
- 146 Science & invention, its philosophy; early pioneers in it.
- 147 N. Y. canal traffic; Rowland on solar spectrum.
- 148 - 158 F.J. Sprague's early textbooks and reference works in his fields
- 159-168 Misc. broeifs re. monopoly suits, interferences, company cat's. etc. Bowditch on navigation (F.J.S. copy).
- 169-180 Electrification of rwys., includ. "m.u." on "South Side "el", and other trunk line operations, some automatic brake cat's.
- 181 Jour. Soc. Western Engineers, Sibley Journal issues.
- 182-183 F.J.S. addresses: "Lessons of Richmond...", "rapid transit", elevators" "possibilities of m.u." etc. (in 1890s).
- 184-186 Transactions and journals of electrical organizations.
- 187-189 Systems of electrical distribution, Kelley patents.
- 190-192 Rapid transit, electrifications, "m.u." also a 1922 item by F.J.S. on automatic controls.
- 193 Naval matters.
- 194 Larger trade catalogues of Un. Edison, G.E., Stanley on electric haulage and lighting.
- 195-196 So. Boston power station and other central stations.
- 197 Edison-G.E. re 1890 announcement on Sprague systems.

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- 198 Sperry gyroscope-instructions.
- 199 Vallejo Bridge, vol of photos.
- 200 Sprague Collection scrap-book, biographical and misc, engineering.
- 201 Missing inventory of these same "n.c." vols.
- 202 Railroad Magazine (Holden art. on F.J.S.), Central London Rwy.
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