Smithsonian
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Guide to the Sperry Rail Detector Car Collection

NMAH.AC.0497

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Collection Overview

Repository:	Archives Center, National Museum of American History
Title:	Sperry Rail Detector Car Collection
Date:	1928-1985
Identifier:	NMAH.AC.0497
Creator:	Sperry Co. (Creator)
Extent:	0.33 Cubic feet (1 box)
Language:	English .
Summary:	Business records related to the development of the rail detector cars used by railroads to find hidden flaws, which could cause catastrophic accidents in event of rail failure.

Administrative Information

Acquisition Information

Immediate source of acquisition unknown.

Processing Information

Collection processed by Don Darroch and Robert Harding, January, 2015

Preferred Citation

Sperry Rail Detector Car Collection, 1928-1985, Archives Center, National Museum of American History.

Restrictions

Collection is open for research.

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Biographical / Historical

The Rail Detector Car was developed as a jointly-financed project by the American Railway Association (ARA) and the Sperry Co. beginning in 1926. The ARA contracted with Sperry to manufacture a rail detector car, initializing a method by which the magnetic detection equipment (invented by Elmer A. Sperry in 1923) contacted the rail. This system proved unsatisfactory as dirt, oxide and scale on the rail surface interfered with its operation. Sperry continued work on the project, developing the induction method which utilized electrical induction coils suspended above the rail. Thus equipped, a successful rail detector car was produced and delivered to ARA in 1928. The newly-organized Sperry Rail Service operated additional cars on a contract basis with the railroads.

A new method of rail flow detection using ultra-sonic high frequency sound waves was introduced by Sperry and mounted on rail detector cars in 1949. The ultra-sonic system proved particularly useful in detecting rail joint flaws not found by the induction method. As a result, by 1985 all of the Sperry detector cars in service used a dual induction/ultrasonic system.

Scope and Contents

This collection focuses on the development of the rail detector cars used by railroads to find hidden flaws, which could cause catastrophic accidents in event of rail failure. The history of this device, including its conception by Elmer A. Sperry in 1923 utilizing a magnetic field passed over the rail and later improvements including an ultra-sonic system is presented in a publication of the American Society for Nondestructive Testing, *Materials Evaluation* , March, 1985. A technical handbook prepared for ASNT in 1963 describes the electric current test principles utilized in development of the induction systems, while a SRS brochure (1950) lists advantages of the ultra-sonic method. A bill of materials for "interior lighting, plumbing and detecting equipment for double unit AAR magnetic type detector car" (1946) is also included.

A detailed chronology of Sperry Rail Service (SRS) actions in collaboration with the American Railway Association (ARA) in the early development of the period (1926-1940) lists correspondence, memoranda and reports on the design and manufacture of the first Sperry rail detector cars, delivered to ARA in 1928. Also included are details of the negotiations between SRS and ARA regarding financing of the project and prices of the cars, as well as proposed modifications of the cars. Later Sperry negotiations with individual railroads, including Northern Pacific, Illinois Central, etc. for car purchases also are listed, including legal questions surrounding ARA's participation are listed.

Arrangement

Collection arranged into one series.

Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

Magnetic instruments
Railroads -- Track-inspection cars

Types of Materials:

Business records -- 20th century

Names:

Sperry, Elmer A.

Container Listing

Box 1, Folder 1	Articles from trade publications: including correspondence (1943-1957), memoranda, and bills of materials, 1946-1985
Box 1, Folder 2	Correspondence, Memoranda, Reports, Exhibits #1- 45, May 1926 - October 1928
Box 1, Folder 3	Correspondence, Memoranda, Reports: Exhibits #46 - 106(2), November 1928 - April 1931
Box 1, Folder 4	Correspondence, Memoranda, Reports: Exhibits #106(3) - 172, April 1931 - January 1935
Box 1, Folder 5	Correspondence, Memoranda, Reports: Exhibits #173-182, January 1935 - April 1938