A guide to the Main Street Iron Works plans, 1901-1921

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A Guide to the Main Street Iron Works plans

HDC0487

San Francisco Maritime National Historical Park, National Park Service

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Title: Main Street Iron Works plans
Date: 1901-1921
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Creator: Fulton Iron Works
Main Street Iron Works
Physical Description: 113 items.
Repository: San Francisco Maritime National Historical Park, Historic Documents Department
Building E, Fort Mason
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Abstract: The Main Street Iron Works plans (SAFR 278, HDC 0487) contains 113 oversize marine engineering plans executed in ink on linen. These plans, created by the Fulton Iron Works and/or the Main Street Iron Works between 1901 and 1921, are for engines built by either company for use in various steam schooners and other ocean-going vessels sailing out of San Francisco.
Physical Location: San Francisco Maritime NHP, Historic Documents Department
Language(s): In English.
Access
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Processing Note
Recataloged 2014
The descriptions in this collection guide were compiled using the best available sources of information. Such sources include the creator’s annotations or descriptions, collection accession files, primary and secondary source material and subject matter experts. While every effort was made to provide accurate information, in the event that you find any errors in this guide please contact the reference staff in order for us to evaluate and make corrections to this guide.
Please cite the title and collection number in any correspondence with our staff.
Preferred Citation
[Item description], [Location within collection organization identified by Collection Number/Series Number/File Unit Number/Item Number], HDC0487 (SAFR 278), Main Street Iron Works plans, San Francisco Maritime National Historical Park
Acquisition Information
SAFR-00001
GOGA-00149
Historical or Biographical Note
This collection contains marine engineering plans from two San Francisco companies doing business from the mid-19th to the early 20th centuries: Main Street Iron Works (also Main Iron Works), and Fulton Iron Works.
HISTORY: Main Street Iron Works:
Main Street Iron Works was established in 1869 by William Deacon in San Francisco. In city directories, the company is referred variously as Main Street Iron Works, and also Main Iron Works.
From 1878 to 1880 the company specialized in engines for steam schooners and stern-wheel engines for river craft. Among the vessels fitted with Main Street Iron Works engines were the DEL NORTE, the CRESCENT CITY, the LAKME, and the NORTH FORK. Many of the vessels outfitted with Main Street Iron Works engines operated in the Alaskan service beginning in the 1890s.
In 1905 Main Street Iron Works was purchased by the firm of A.Z. High, Austin Sperry, and Alexander DeBretteville; at the time Alexander DeBretteville was a co-owner of Fulton Iron Works, and it is possible that this is how Fulton Iron Works engineering plans became intermingled with the Main Street Iron Works plans in this collection.

Between 1905 and 1916 Main Street Iron Works constructed the machinery for over 22 steamers, in addition to the deck machinery for many coast-wise motor ships. In 1914 Main Street Iron Works acquired Keystone Boiler Works, which was followed by a modernization of the tools and facility.

In February of 1915, Main Street Iron Works installed the main engine and associated machinery in the steam schooner WAPAMA. The 825 HP triple expansion engine sits on the Hyde Street Pier at San Francisco Maritime National Historical Park. Although the engine number is not known, it is very likely this collection includes plans for this engine or very similar engines (file 1: Marine Engine - 13-1/2x23x40/30 inch).

In 1916 the Main Street Iron Works acted as well as a representative for the Terry Steam Turbine Company (Hartford CT) and the Schutte and Koerting Company (Philadelphia, PA).

The plans in this collection are dated as late as 1926, but by 1927 there is no clear evidence that Main Iron Works is operating a factory shop any longer. By 1929 DeBretteville is no longer listed as a co-proprietor. 1929 is the last year that Main Iron Works makes an appearance in the Langly-Crocker San Francisco City Directory, presumably a victim of the stock-market crash of that year.

HISTORY: Fulton Iron Works:

Daniel B. Hinckley (1826–1915) and his brother arrived in San Francisco in May of 1850, with equipment to establish for a small casting and machining factory; the business they established was the nucleus of the Pacific Iron Works, owned jointly by the two brothers and their uncle. In 1854 the brothers sold out and returned to Massachusetts. In 1856 Daniel B. Hinckley returned to San Francisco, and in 1857 he established the Fulton Foundry on Davis Street, between Sacramento and California streets in a short-lived partnership of Hinckley, Highwater, & Field. Over the next two decades the Fulton Iron Works underwent numerous partnership reorganizations, with Daniel Hinckley retaining partial or full ownership shares of the company at all times. In 1859 Fulton Iron Works leased land and built a foundry and machine shop on First Street, where the shop remained until 1862. That same year Hinckley began doing business as a single owner of record, with occasional investor partners. The following year Daniel E. Hayes became a one-eighth owner; later his interest was increased to one-fourth. By 1867 the business had moved to a larger site at Fremont, Howard and Beale streets. James Spiers joined the firm in 1877, and the partnership was formally incorporated as Hinckley, Spiers & Hayes, with Daniel Hinckley retaining partial or full ownership shares of the company at all times. In 1895 Fulton Iron Works completed engines for the steamers EXCELSIOR and KEAUHOUI, and in 1898 construction of machinery for steam-ships, and also for milling and mining purposes. They built double, triple, and quadruple expansion steam engines, high and low pressure marine engines for stern-wheel steamers, beam engines for ferry steamers, Corliss engines, and miscellaneous machinery.

Between 1887 and 1892 Fulton Iron Works manufactured engines and boilers for some ninety vessels, including the "walking beam" engine for the side-wheel paddle, double-ended ferryboat UKIAH (built 1890). In 1923 the ferry was re-christened EUREKA, and launched as a passenger and automobile ferry (her present form). The EUREKA, a National Historic Landmark, is berthed at San Francisco Maritime National Historical Park. Eureka's tall "walking beam" engine is the last working example of an engine-type once common on America's waterways. (Please note, however, that this collection does not include drawings of this engine).

By early 1892, Fulton Iron Works was ranked among the most extensive and important manufactories west of the Mississippi river. In 1892 the company had $500,000 invested in their plant and business, employed 400 skilled workmen, and did business of a million dollars a year. In 2012 terms this would be the equivalent of $13 million in capital investments, 1100 skilled jobs, and nearly $1 billion of a relative share of the gross domestic product.

In May 1892 the Fremont, Howard, and Beale yard was destroyed by fire that spread from an adjoining business. By October Fulton Iron Works relocated to an 18 acre site adjacent to the Stone and Van Bergen Boat Yard, in the Harbor View area of San Francisco. They reincorporated as Fulton Engineering and Shipbuilding Works. The isolated location at Harbor View, in the present day Marina district, meant that material had to be trucked overland across the city at a time before the streets were paved, or towed on barges to the machine shops and shipyard. Nevertheless, the Fulton yard remained very busy. In 1894 the ferry steamer SAUSALITO was launched with a Fulton engine (this ferry, retired in 1933, is the current clubhouse of the Sportsmen Yacht Club in Antioch, Ca.). In 1895 Fulton completed engines for the steamers EXCELSIOR and KEAUHOUI, and in 1898 the steam schooner SAMOA was fitted with an engine.

In 1895 Fulton expanded quickly in response to the demand of the Alaskan gold rush for sea-worthy steam ferries, and for industrial mining equipment. But the pace of and scale of the expansion was unsustainable following the decline of the
Klondike goldfields. Fulton’s decline was hastened by a fire in August 1900, which destroyed the planing mills and molders supply shops as well as a tugboat under construction for the Merchants’ and Shipowners’ Tugboat Association. Fulton sustained $30,000 damage (equivalent to $857,000 in 2012 values). Just two and a half years later, in December of 1902, there was a dockside explosion and fire on the steamer PROGRESO, which was being converted into an oil burning carrier. The disaster occurred while forty mechanics of the iron works and twenty employees of the ship were on board or below decks; eight men were killed and about twenty more were seriously injured. The explosion destroyed property valued at $200,000 (in 2012 relative value, about $4.3 million). The fire was nearly all below deck, where fourteen oil tanks, containing about 400 barrels of oil in all, burned fiercely for hours after the explosion. All the injury and loss of life was caused by the first explosion, which shook all the buildings at Harbor View; the shock was felt a mile away.

Howard T. Livingston started work at Fulton Iron in 1906. At the time two triple expansion engines and one compound engine were being built for the steamers YOSEMITE and SHANNA-YAK, and the tugboat RESTLESS. Mr. Livingston’s 1969 recollections about Fulton Iron Works provide detailed information about the layout of the Fulton Iron Works shops, machinery, and production methods. According to Mr. Livingston, the plant used the same machine tools and manufacturing methods in 1905 which it had used in the 1880s. He recalled that “neither jigs nor templates were...used.... all parts were hand finished and fitted together. The result of this practice was that equivalent parts on any one engine, or two similar engines, were not interchangeable. Parts that would be taken apart and put together again in overhauling were stenciled, so that when taken apart they could be replaced in exactly the same place as before. This practice of hand fitting carried on to the end.” From start to finish it took approximately six months to complete the three engines.

Antiquated production practices and the losses incurred by fires may have precipitated Fulton’s decline, but were not the only contributing factors. In May of 1907 the Iron Trades Council called a strike for an 8 hour day. The strike called out 4000 skilled unionized iron workers city wide, idled several more thousands non-union men, and virtually shut down the Bay Area metal trades industry. This strike was one of numerous and sometimes violent labor upheavals in San Francisco during May 1907. Added to labor unrest was an unstable financial environment. The international (and in particular the British) insurance industry experienced a series of financial aftershocks after the 1906 San Francisco earthquake, which in turn set of a banking panic in the United States in October of 1907. The American panic set off a global financial crisis. Fulton Iron Works, obsolete, suffering from labor unrest, and lacking credit, finally shuttered in 1908.

SOURCES:
For Main Street Iron Works:
Crocker-Langley San Francisco City Directory. (San Francisco: CA) until 1929
Polk’s Crocker-Langley Directory. (San Francisco, CA) from 1930 to 1949
Pacific Marine Review (October 1916:55-8)
Wapama, Historic American Engineering Record HAER CA-67.
For Fulton Iron Works:
Daniel Hinckley Family History:
On EUREKA:
San Francisco Maritime National Historical Park website: www.nps.gov/safr.
1892 fire and relocation:
San Francisco Call, 4 October 1892 (72:126)
1900 fire:
San Francisco Call, 19 August 1900 (87:80)
1902 PROGRESO:
The Daily Times [of] New Brunswick New Jersey, 4 December 1902
Howard T. Livingston recollections:
Howard T. Livingston papers. SAFR 333 (HDC0472). San Francisco Maritime National Historical Park collection.
Iron Strike:
Knight, Robert Edward Lee. Industrial Relations in the San Francisco Bay Area, 1900-1918 (Berkeley: 1960)
San Francisco Call, 27 March 1907 (101: 117)
1907 banking crisis and panic:
Odell and Weidenmeir "Real Shock, Monetary Aftershock: The 1906 San Francisco Earthquake and the Panic of 1907," Journal of
Economic History 64: 1002-1027
Bordo and Landon-Lane "The Global Financial Crisis: Is It Unprecedented?" Conference on Global Economic Crisis: Impacts,
Transmission, and Recovery. East West Center of the University of Hawaii and the Korea Development Institute Conference.
Honolulu, Hawaii, 19-20 August 2010.

Collection Scope and Content
The Main Street Iron Works plans (SAFR 278, HDC 0487) contains 113 oversize marine engineering plans executed in ink on
linen. These plans, created by the Fulton Iron Works and/or the Main Street Iron Works between 1901 and 1921, are for
engines built by either company for use in various steam schooners and other ocean-going vessels sailing out of San
Francisco.

The collection is open for public use with staff assistance. 102 items have been digitized.
The collection was processed and described at the item level, and recataloged in 2014. This collection includes re-cataloged
materials originally cataloged as GOGA 9138 THROUGH 9144. Collection previously named Main Street Iron Works: Plans,
1901-1921.

Collection Arrangement
Arranged into eight (8) files. Within files, items are described at the item level.

Subjects and Indexing Terms
Marine engines
steam schooners
Iron
Steel
DeBretteville, Alexander
Hinckley, Daniel B.
Livingston, Howard T.
Deacon, William
Fulton Iron Works (San Francisco, Calif.)
Main Street Iron Works (San Francisco, Calif.)
Olympic (built 1901; steam schooner)
Yosemite (built 1906; steam schooner)
Norwood (built 1904; steam schooner)
Chehalis (built 1901; steam schooner)
Shasta (built 1903; cargo ship)
Saginaw (built 1907; steam schooner)
F. A. Kilburn (built 1904; steamer)
Northland (built 1904; cargo ship)
Frank D. Stout (built 1917; steam schooner)
Vanguard (built 1904; steam schooner)
Williamette (built 1911; steam schooner)
Watsonville Transportation Company
San Francisco (Calif.)
Architectural drawings--Marine
Series 01. Engine plans, 1900-1921

Extent: 14 map folders and 1 roll

Scope and Content Note
GOGA-00149

Arrangement
Arranged into 8 files

Provenance
GOGA-00149

Folders 1, 2, 10, and 12

File Unit 01. Marine Engine - 13-1/2x23x40/30 inch, 1900-1916

Extent: 17 EA (oversized ink on linen drawings).

Physical Description: 17 oversize ink on linen drawings

Scope and Content Note
17 drawings of a 13-1/2 x23 x 40 / 30 inch Marine Engine. All of these drawings were used
by and have drawing numbers assigned by Main Street Iron Works and it’s predecessor
organization, Fulton Iron Works. Among the vessels referenced in these drawings are the
steamers OLYMPIC, NORWOOD, CHEHALIS, SHASTA, YOSEMITE, and SAGINAW, as well as other
unnamed vessel identified by job numbers.

OLYMPIC (built 1901; steam schooner), built at the G.H. Hitchings yard in Hoquiam,
Washington, in 1901. OLYMPIC displaced 688 tons.

NORWOOD (built 1904; steam schooner), built for Sudden and Christensen in 1904 at the Hall
Brothers Shipbuilding in Winslow, Washington. NORWOOD was scrapped in 1933.

CHEHALIS (built 1901; passenger/cargo vessel), built at the Bendixen yard in Fairhaven,
California in 1901 (possibly by H.D. Bendixen before his retirement), for Sudden &
Christensen. The vessel was scrapped in 1938.

SHASTA (built 1903; cargo vessel), built by the Matthews Ship Building Company in Hoquiam,
Washington, for the E.K. Wood Company, San Francisco. SHASTA was 205 feet in overall
length and had one Scotch marine boiler. This vessel should not be confused with another
of the same name, SHASTA (built 1908), by the same yard and for the same client, which was
wrecked off of Alameda in 1937.

YOSEMITE (built 1906; steam schooner), built at the Bendixen yard in Fairhaven, California
in 1906, for the Yosemite Steamship Company. YOSEMITE was wrecked off Point Reyes in 1926.

SAGINAW (built 1908; steam schooner), built by the Matthews Ship Building Company, in
Hoquiam, Washington, for the Hart-Wood Lumber company of San Francisco. SAGINAW was 205
feet and had two Scotch marine boilers.

Arrangement Note: Each plan has a three-part item number inscribed on the lower-left verso
of the drawing in ink, presumably assigned by the Main Street Iron Works file department.
Items are arranged sequentially within files by these numbers, which do not always fall
into a linear date sequence, or other numbers assigned to the drawing (e.g. by drawing
number, part number, order number or hull number).

Folder 01

Item No. 253-103-114. Reversing crank arm, 1903 October

Extent: 1 ink on linen.

Scope and Content Note
SHASTA (built 1903; cargo ship). Plan is marked with the Fulton Iron Works number X4432
and the Main Street Iron Works number X1992.

Folder 10

Item No. 253-103-166. Scale of cut offs on arm, 1903 November

Extent: 1 ink on vellum.

Scope and Content Note
SHASTA (built 1903; cargo ship) and NORWOOD (built 1904; steam schooner). Plan is
marked with the Fulton Iron Works number Y2144 and the Main Street Iron Works number
V1851.
Folder 01

Item No. 253-103-167. General arrangement, 1901 May

Extent: 1 ink on linen.
Scope and Content Note
Multiple vessels, including OLYMPIC (built 1901; steam schooner) and NORWOOD (built 1904; steam schooner). Plan is marked with the Fulton Iron Works number V2302 and the Main Street Iron Works number V-462.

Folder 01

Item No. 253-103-168. HP and IP Piston valves - stems and liners, 1903 October

Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including YOSEMITE (built 1906; steam schooner), NORWOOD (built 1904; steam schooner), and SAGINAW (built 1907; steam schooner). Plan is marked with the Fulton Iron Works number W3398 and the Main Street Iron Works number W-507.

Folder 01

Item No. 253-103-169. Valve Stem ends, 1901 January

Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including YOSEMITE (built 1906; steam schooner), CHEHALIS (built 1901; steam schooner), SHASTA (built 1903; cargo ship), OLYMPIC (built 1901; steam schooner), and SAGINAW (built 1907; steam schooner). Also includes multiple unnamed numbered engines. Plan is marked with the Fulton Iron Works number W2704 and the Main Street Iron Works number W-506.

Folder 01

Item No. 253-103-170. Reversing links, 1901 March

Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including OLYMPIC (built 1901; steam schooner), SAGINAW (built 1907; steam schooner), SHASTA (built 1903; cargo ship), and YOSEMITE (built 1906; steam schooner); others by numbers. Plan is marked with the Fulton Iron Works number W2630 and the Main Street Iron Works number W-509.

Folder 01

Item No. 253-103-171. LP slide valve - stem, & balance piston, 1903 June

Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including NORWOOD (built 1904; steam schooner), SAGINAW (built 1907; steam schooner), SHASTA (built 1903; cargo ship), and YOSEMITE (built 1906; steam schooner) Also includes multiple numbered engines. Plan is marked with the Fulton Iron Works number W3230 and the Main Street Iron Works number W-508.

Folder 01

Item No. 253-103-172. Piston rod and crosshairs, 1903 May

Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3228 and the Main Street Iron Works number W-512.

Folder 01

Item No. 253-103-173. HP piston, 1903 May

Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3229 and the Main Street Iron Works number W-511.
Folder 01  Item No. 253-103-174. Intermediate pressure cylinder, 1905 September
Extent: 1 ink on linen.
Scope and Content Note
Plan is for vessels SAGINAW (built 1907; steam schooner) and YOSEMITE (built 1906; steam schooner). Other numbered jobs are not identified by vessel name. Plan is marked with the Fulton Iron Works number W3993 and the Main Street Iron Works number W-518.

Folder 01  Item No. 253-103-175. Crosshead guides, 1900 December
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W2703 and the Main Street Iron Works number W-517.

Folder 02  Item No. 253-103-176. Connecting rod, 1903 May 8
Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including NORWOOD (built 1904; steam schooner), SAGINAW (built 1907; steam schooner), SHASTA (built 1903; cargo ship), and YOSEMITE (built 1906; steam schooner). Other job numbers not identified by vessel name. Plan is marked with the Fulton Iron Works number W3227 and the Main Street Iron Works number W-514.

Folder 02  Item No. 253-103-177. Valve stem guide brackets, 1905 September
Extent: 1 ink on linen.
Physical Description: Conservation treatment 2013: tears repaired.
Scope and Content Note
SAGINAW (built 1907; steam schooner) and YOSEMITE (built 1906; steam schooner). Other numbered jobs are not identified by vessel name. Plan is marked with the Fulton Iron Works number W3494 and the Main Street Iron Works number W-513.

Folder 12  Item No. 253-103-179. Valve chest for feed pumps, 1906 August
Extent: 1 blueprint.
Physical Description: Requires conservation
Scope and Content Note
This plan is for multiple numbered vessels not identified by vessel name. Plan is marked with the Main Street Iron Works number V-460.

Folder 02  Item No. 253-103-180. Outside views of cylinders, 1903 October
Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including "Sudden & Christensen Str.", and SAGINAW (built 1907; steam schooner). Plan is also marked with multiple engine or job numbers not identified by vessel name. Plan is marked with the Fulton Iron Works number V3572 and the Main Street Iron Works number V3493 [or V-459], and a note "see sheet V3470."

Folder 02  Item No. 253-103-182. Bed Plate, 1913 March
Extent: 1 ink on linen.
Scope and Content Note
Multiple named vessels, including NORWOOD (built 1904; steam schooner), OLYMPIC (built 1901; steam schooner), SAGINAW (built 1907; steam schooner), SHASTA (built 1903; cargo ship), and YOSEMITE (built 1906; steam schooner). Other numbered engines and jobs are not identified by vessel name. Note that the information predates 1913 (as early as-February 1901). Plan is marked with the Main Street Iron Works number V-350. There is a note "traced from FIW-3009, V-501."
Folder 02

Item No. 253-103-183. Thrust Block, 1916 August 23

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Main Street Iron Works number V-352.

Folders 2 through 7, 10. and 12

File Unit 02. F. A. KILBURN (built 1904; steamer) engine drawings, 1901-1909 (bulk 1903)

Extent: 53 EA (47 ink on linen; 4 ink on vellum; 2 blueprints).

Physical Description: 47 ink on linen; 4 ink on vellum; 2 blueprints

Scope and Content Note

52 drawings of engine machine parts by the Fulton Iron Works, for the steamship F. A. KILBURN. This file also includes one (1) naval architectural drawing of the lines and outboard profile. All of these drawings were used by and have drawing numbers assigned by Main Street Iron Works and/or it’s predecessor organization, Fulton Iron Works.

Each plan has a three-part item number inscribed on the lower-left verso of the drawing in ink, presumably assigned by the Main Street Iron Works file department. Items are arranged sequentially within files by these numbers, which do not always fall into a linear date sequence, or other numbers assigned to the drawing (e.g. by drawing number, part number, order number or hull number).

F. A. KILBURN was a passenger and cargo steamer built by the Bendixen shipbuilding yard in Fairhaven, California in 1904, for the Watsonville Transportation Company. The engine fitted for the F. A. KILBURN was a 17 x 27 x 31 x 31 x 24 inch triple expansion engine. In 1904 the F. A. KILBURN was built to move passengers and cargo between Monterey and San Francisco for the trouble plagued Watsonville Transportation Company, but after less than a year of operation on the Monterey to San Francisco run, the vessel was sold in 1905 by creditors to the North Pacific Steamship Co. for the Portland - San Francisco service. In 1918 she was sold to the Mexican Fruit and Steamship Company. She burned off American Shoals Light, Florida, June 14, 1918.

Folder 02

Item No. 253-103-016. Turning gear, 1906 August

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Main Street Iron Works number W--23.

Folder 02

Item No. 253-103-100. 9 foot 6 inch propeller - 4 blade - RH, 1909 January

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Main Street Iron Works number W-388.

Folder 12

Item No. 253-103-102. 30 inch evaporator by James Reilly Repair and Supply Co., 1902 August 18

Extent: 1 blueprint annotated with red ink.

Scope and Content Note

Plan is marked with the Main Street Iron Works number Y2143; there is an additional sheet number V1850.

Folder 08

Item No. 253-103-105. Vertical duplex piston pump, ca. 1904 February

Extent: 1 blueprint.

Physical Description: Marked on verso with date and as record print/office copy.

Scope and Content Note

Plan is marked with the Main Street Iron Works number Y2329.
Folder 12

Item No. 253-103-106. Vertical duplex piston pump, undated

Extent: 1 blueprint.

Scope and Content Note

This blueprint is by Geo. E. Dow Pumping Engine Co. The plan has various marks: ink-stamped "Record Print Office Copy Main Iron Works, Y1714"; ink-stamped "Y2328"; red grease pencil "#2731"; graphite pencil "Stmr. Kilburn #2731, 2 main fuel pumps, Feb 18, 1904."

Folder 02

Item No. 253-103-115. 6-1/2 x 6 inch vertical engine for centrifugal pump, 1903 October

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3548.

Folder 02

Item No. 253-103-117. Position of machinery, 1903 September 23

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3550.

Folder 02

Item No. 253-103-119. Position of holding down bolts and sea cocks, 1903 November 21

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3605.

Folder 03

Item No. 253-103-120. Fuel oil tanks, 1904 January 26

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3635.

Folder 03

Item No. 253-103-121. Babcock and Wilcox boiler(s), 1904 February 6

Extent: 1 ink on linen.

Scope and Content Note

Plan shows the following views: Breeching - Stack Casing - Umbrella.

Plan is marked with the Fulton Iron Works number V3634.

Folder 03

Item No. 253-103-123. Arrangement of steam and exhaust pipes, 1903 November

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3602.

Folder 03

Item No. 253-103-124. Scales of capacity of fuel oil tanks, undated

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number Y2266 and the Main Street Iron Works number Y1750.

Roll 1

Item No. 253-103-125. Arrangement of suction discharge and blow pipes, 1903 November 3

Extent: 1 ink on linen.

Scope and Content Note

Plan is marked with the Fulton Iron Works number V3601.
<table>
<thead>
<tr>
<th>Folder 03</th>
<th>Item No. 253-103-126. Lines and outboard profile, 1903 October</th>
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<tr>
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<th>Folder 03</th>
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<tr>
<th>Folder 03</th>
<th>Item No. 253-103-128. Crank chucks, 1903 August</th>
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<th>Folder 03</th>
<th>Item No. 253-103-129. Crank journals and pins, 1903 August</th>
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<th>Folder 03</th>
<th>Item No. 253-103-131. Stuffing box, 1903 September 29</th>
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<td>Scope and Content Note</td>
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<td>Plan is marked with the Fulton Iron Works number X4406 and the Main Street Iron Works number X1972.</td>
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<table>
<thead>
<tr>
<th>Folder 03</th>
<th>Item No. 253-103-132. Indicator gear, 1903 September</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Extent: 1 ink on linen.</td>
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<td>Plan is marked with the Fulton Iron Works number X4407 and the Main Street Iron Works number X1973.</td>
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<tr>
<th>Folder 04</th>
<th>Item No. 253-103-133. Detail of shafting, 1903 October</th>
</tr>
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<tbody>
<tr>
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<td>Plan is marked with the Fulton Iron Works number X4404 and the Main Street Iron Works number X1974.</td>
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<tr>
<th>Folder 04</th>
<th>Item No. 253-103-134. Suction nozzle, 1903 December 1</th>
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<tbody>
<tr>
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<td>Plan is marked with the Fulton Iron Works number X4412 and the Main Street Iron Works number X1978.</td>
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<table>
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<tr>
<th>Folder 10</th>
<th>Item No. 253-103-135. Adjustment of valve-travel of reversing engine, 1904 May</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Extent: 1 ink on vellum.</td>
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<td>Scope and Content Note</td>
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<td>Plan is marked with the Fulton Iron Works number Y2221 and the Main Street Iron Works number Y1724.</td>
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Folder 10
Item No. 253-103-136. Crank chucks, 1903 April 22
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Fulton Iron Works number Y2084 and the Main Street Iron Works number Y1994.

Folder 10
Item No. 253-103-137. Dash plate, 1903 November 3
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Fulton Iron Works number Y2136 and the Main Street Iron Works number Y1847.

Folder 10
Item No. 253-103-138. 2 inch copper pass over pipe, 1903 July
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Fulton Iron Works number Y2126 and the Main Street Iron Works number Y1842.

Folder 04
Item No. 253-103-139. Detail of low pressure cylinders, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3337.

Folder 04
Item No. 253-103-140. Detail of intermediate cylinder, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3338.

Folder 04
Item No. 253-103-141. Detail of HD cylinder, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3339.

Folder 04
Item No. 253-103-142. False covers, eye bolts, and bottom valve ch cover, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3340.

Folder 04
Item No. 253-103-143. Details of back column and sliders, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3341.

Folder 04
Item No. 253-103-144. Valve guide bracket, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3342.

Folder 04
Item No. 253-103-145. Eccentric straps, rods, etc., undated
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3343.
Folder 04
Item No. 253-103-146. Operating levers, 1903 November
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3344.

Folder 05
Item No. 253-103-147. Reversing links, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3346.

Folder 05
Item No. 253-103-148. Valve stem and guide rod, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3347.

Folder 05
Item No. 253-103-149. Eccentric position, 1903 September
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3348.

Folder 05
Item No. 253-103-150. Connecting rod, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3351.

Folder 05
Item No. 253-103-151. Details for 7-1/2 x 12 inch reversing engine, 1903 September
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3352.

Folder 05
Item No. 253-103-152. Turning gear, 1903 September
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3353.

Folder 05
Item No. 253-103-153. HP and IP piston valve and liners, 1903 September 21
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3354.

Folder 05
Item No. 253-103-154. Valve diagrams, 1903 September 24
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3355.

Folder 05
Item No. 253-103-155. Drain operating gear, 1903 September
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3356.
Folder 05  Item No. 253-103-156. General arrangement, 1903 December  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3594.

Folder 06  Item No. 253-103-157. Shafting and front columns, 1903 September 25  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3547.

Folder 06  Item No. 253-103-158. Thrust block, 1903 July  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3546.

Folder 06  Item No. 253-103-159. Bed plate and turning gear, 1903 September 19  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3545.

Folder 06  Item No. 253-103-160. Condenser, 1903 September  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3544.

Folder 06  Item No. 253-103-161. Assembled drawing of cylinders, 1901 September  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3543.

Folder 06  Item No. 253-103-162. Reversing shaft, arms, drag rod, etc., 1903 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3542.

Folder 06  Item No. 253-103-163. Crossheads, 1903 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3541.

Folder 06  Item No. 253-103-164. Pistons, 1903 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3540.

Folder 06  Item No. 253-103-165. Details of operating gears, 1903 July  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Fulton Iron Works number V3539.
Folder 06
Item No. 253-103-204. Plan of deadwood, 1903 September 30
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3357.

Folder 07
Item No. 253-103-205. Locking gear for reversing shaft, 1903 July
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3358.

Folder 07
Item No. 253-103-206. LP valve - balance cylinder and chest cover, 1903 October
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W3359.

Folder 07
File Unit 03. 5 inch organ tube steam whistle, 1903 April 22
Extent: 1 EA (ink on linen drawing).
Physical Description: 1 ink on linen
Scope and Content Note
One (1) drawing for a 5 inch organ tube steam whistle, for steamers F. A. KILBURN (built 1904: passenger and cargo vessel) and NORTHLAND (built 1904: cargo ship). For information on the F. A. KILBURN see file 2. The NORTHLAND was built in the Bendixen yard at Fairhaven, California, in 1904; NORTHLAND was lost in a collision in San Francisco Bay in 1927. The vessel displaced 845 tons.
Plan marks: Item number 253-103-113 is inscribed on the lower-left verso of the drawing in ink, presumably assigned by the Main Street Iron Works file department. Fulton Iron Works drawing number X4508; Main Street Iron Works number X2036. Drawing numbers are stamped in the title block on the recto of the drawing, at the lower right corner.

Folder 07
Item No. 253-103-113. 5 inch organ tube steam whistle, 1903 April 22
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number X4508 and the Main Street Iron Works number X2036.

Folders 7, 10 and 11
File Unit 04. Marine engine details, 1903, 1917, 1921, and undated
Extent: 4 EA (1 ink on linen, 2 ink on vellum, 1 pencil on vellum).
Physical Description: 1 ink on linen, 2 ink on vellum, 1 pencil on vellum
Scope and Content Note
Four (4) drawings of marine engine details. All of these drawings were used by and have drawing numbers assigned by Main Street Iron Works and/or it’s predecessor organization, Fulton Iron Works. Each plan has a three-part item number inscribed on the lower-left verso of the drawing in ink, presumably assigned by the Main Street Iron Works file department. Items are arranged sequentially within files by these numbers, which do not always fall into a linear date sequence, or other numbers assigned to the drawing (e.g. by drawing number, part number, order number or hull number).
Folder 14
Item No. 253-103-103, 104, 107, 10. Engine details, undated
Extent: 5 sheets: pencil and ink on graph paper, letter size; one has small blueprint section pasted to it..
Scope and Content Note
Plans for the Frank D. Stout (built 1917; steam schooner), and for engines 130, 131. The Frank D. Stout (built 1917; steam schooner), was built by the St. Helens Shipbuilding Company (St. Helens, Oregon) for the Brookings Commercial Co. of San Francisco. Originally designed as a twin-screw motor vessel with Bolinder diesels, wartime shortages resulted in her being fitted instead with a 600-horsepower triple-expansion engine from Main Street Iron Works.

Folder 07
Item No. 253-103-110. 1 inch copper coil for enclosed feed water heater, 1909 April
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number I-274.

Folder 10
Item No. 253-103-111. IP piston, 1921 March 17
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number 2252.

Folder 10
Item No. 253-103-112. HP hood follower, 1917 March 17
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number Y2551.

Folder 07
Item No. 253-103-130. Reverse shaft adjustment, 1903 August
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Fulton Iron Works number X4405 and the Main Street Iron Works number X1971.

Folder 11
Item No. 253-103-188. 6 rods - connecting rod, undated
Extent: 1 pencil on vellum.
Scope and Content Note
Plan is marked with the Fulton Iron Works number W3736 and the an additional number 15606.

Folder 13
Item No. 253-103-198. 2 inch rotating throttle valve, double stuffing box, undated
Extent: 1 ink and pencil on vellum.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W-566.

Folder 13
Item No. 253-103-209. Details of reversing engine and hand gear, 1917 July
Extent: 1 ink on linen annotated with red ink.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number Y3743.
Item No. 253-103-210. 3 inch throttle valve, 1917 August 04
Extent: 1 ink and pencil on vellum.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number V1299.

Item No. 253-103-200. Scotch marine boilers 11 x 11 feet, 1909 April
Extent: 1 ink on linen.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W-376.

Item No. 253-103-201. Scotch marine boiler, 1910 October
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W-595.

Item No. 253-103-060. 9 foot 4 inch GI propeller - 4 blade - RH, 1909 January
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W-387.
Fair to poor condition: dirty, edges are fraying and rolling.

Item No. 253-103-202. 3 inch throttle valve, 1917 August 04
Extent: 1 ink and pencil on vellum.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number V1299.

Two (2) original drawings of marine engines. Both drawings were used by and have drawing numbers assigned by Main Street Iron Works. Both plans have a three-part item number inscribed on the lower-left verso of the drawing in ink, presumably assigned by the Main Street Iron Works file department. Items are arranged sequentially within files by these numbers, which do not always fall into a linear date sequence, or other numbers assigned to the drawing (e.g. by drawing number, part number, order number or hull number).

Item No. 253-103-060. 9 foot 4 inch GI propeller - 4 blade - RH, 1909 January
Extent: 1 ink on linen.
Scope and Content Note
Plan is marked with the Main Street Iron Works number W-387.
Fair to poor condition: dirty, edges are fraying and rolling.
Folder 07  
Item No. 253-103-086. 8 foot 9 inch propeller, 1905 February 2  
Extent: 1 ink on linen annotated with red ink.  
Scope and Content Note  
VANGUARD (built 1904; steam schooner).  
Plan is marked with the Fulton Iron Works number X4610 and the Main Street Iron Works number X2097.  
VANGUARD was a wooden steam schooner of 358 registered tons, with a single deck, measuring 138 feet in length, 33 feet wide and 11 feet deep. It was built in 1904 by John W. Dickie in Alameda, California and could carry up to 375,000 board feet of lumber and 18 passengers. VANGUARD was originally owned by the E. J. Dodge Company and sold in 1922 to H. A. Richardson of San Francisco. In the 1930s, the ship was sold to Charles H. Higgins and was still active in 1941. [Source: http://mendocinohistory.pastperfect-online.com]

Folder 07  
Item No. 253-103-087. 11 foot 6 inch propeller, 4 blade, 1916 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number X2372.

Folder 07  
Item No. 253-103-089. 8 foot propeller - 4 blade - RH, 1908 December  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W-380.

Folder 11  
Item No. 253-103-099. 10 foot 4 inch propeller, 1918 January 18  
Extent: 1 pencil on oiled tracing paper annotated with red ink.  
Scope and Content Note  
SAINT FRANCOIS (steamer).  
Plan is marked with the Main Street Iron Works number X2454.

Folder 07  
Item No. 253-103-101. 8 foot 4 inch propeller - 4 blade - RH, 1910 November  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W-596.

Folder 08  
Item No. 253-103-178. Stern bearing and stuffing box for an 8 1/4 inch propeller shaft, 1911 May 10  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number V-464.

File Unit 07. General arrangements and profiles, 1911, 1917, and undated  
Extent: 3 EA (1 blueprint, 1 ink on linen; 1 ink on vellum).  
Physical Description: 1 blueprint, annotated; 1 ink on linen; 1 ink on vellum, annotated  
Scope and Content Note  
Three (3) drawings of general arrangements and ship plans.

Folder 12  
Item No. 253-103-118. Inboard profile and arrangement, undated  
Extent: 1 blueprint annotated with red pencil.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number V3604.  
Folder 08  Item No. 253-103-181. Profile plan, 1911 May 10
Extent: 1 ink on linen.
Scope and Content Note
WILLAMETTE (built 1911; steam schooner) was built by Hammond Lumber at Humboldt Bay, California for the McCormick Steamship Company. WILLAMETTE was rechristened CALIFORNIA in 1932, and SUSAN OLSON in 1940. Wrecked in 1942.
Plan is marked with the Main Street Iron Works number V-461.

Folder 13  Item No. 253-103-208. General arrangement of reverse shaft, bracket, and hand gear, 1917 July
Extent: 1 ink on linen annotated with red pencil.
Physical Description: Poor condition, requires conservation for scanning.
Scope and Content Note
Plan is marked with the Main Street Iron Works number V3742.

Folders 8 through 11  File Unit 08. Marine engine - 10-1/2 x 18 x 30/24 inch, 1917; 1921
Extent: 17 EA (13 ink on linen; 4 ink on vellum).
Physical Description: 13 ink on linen; 4 ink on vellum
Scope and Content Note
17 original drawings of a 10 1/2 x 18 x 30/24 inch marine engine. 16 are detail drawings, one is a general arrangement drawing. Vessels are referred to by job and or hull numbers only, not named vessels. All of these drawings were used by and have drawing numbers assigned by Main Street Iron Works.
Each plan has a three-part item number inscribed on the lower-left verso of the drawing in ink, presumably assigned by the Main Street Iron Works file department. Items are arranged sequentially within files by these numbers, which do not always fall into a linear date sequence, or other numbers assigned to the drawing (e.g. by drawing number, part number, order number or hull number).

Folder 10  Item No. 253-103-184. Spring for LP valve, 1917 November 10
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number Y2188.

Folder 10  Item No. 253-103-185. Receiver pipes, 1917 August 28
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number Y2162.

Folder 11  Item No. 253-103-186. LP valve system, 1921 December 28
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number 2254 .

Folder 11  Item No. 253-103-187. Thrust shaft, 1917 July 23
Extent: 1 ink on vellum.
Scope and Content Note
Plan is marked with the Main Street Iron Works number Y2154.
Folder 13  
Item No. 253-103-189. Connecting rod, 1917 June 8  
Extent: 1 pencil on vellum.  
Physical Description: Poor condition, requires conservation.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3736.

Folder 08  
Item No. 253-103-190. Crossheads and piston rod, 1917 June  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3737.

Folder 08  
Item No. 253-103-191. Pistons, 1917 June  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3738.

Folder 08  
Item No. 253-103-192. Cylinders and slides, 1917 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3740.

Folder 08  
Item No. 253-103-193. Indicator gear, 1917 August  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W2208.

Folder 08  
Item No. 253-103-194. Built up crankshaft, 1917 June 6  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3735.

Folder 13  
Item No. 253-103-195. Metallic packing of valve stem, 1917 July  
Extent: 1 ink and pencil on vellum.  
Physical Description: Poor condition, requires conservation for scanning.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3741.

Folder 08  
Item No. 253-103-196. LP false face, 1917 June  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W2470.

Folder 08  
Item No. 253-103-197. LP and IP piston rod, metallic packing, 1917 July 27  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3742.

Folder 08  
Item No. 253-103-202. Cylinders, 1917 September 24  
Extent: 1 ink on linen.  
Scope and Content Note  
Plan is marked with the Main Street Iron Works number W3738.
<table>
<thead>
<tr>
<th>Folder 09</th>
<th>Item No. 253-103-203. Valve gear details, 1917 August 24</th>
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</thead>
<tbody>
<tr>
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<td>Plan is marked with the Main Street Iron Works number V3739.</td>
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<tr>
<th>Folder 09</th>
<th>Item No. 253-103-207. Valves and Stems, 1917 September 12</th>
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</thead>
<tbody>
<tr>
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<thead>
<tr>
<th>Folder 09</th>
<th>Item No. 253-103-211. Bed Plate and Turning Gear, 1917 June</th>
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</thead>
<tbody>
<tr>
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<thead>
<tr>
<th>Folder 09</th>
<th>Item No. 253-103-212. Thrust block, 1917 September 21</th>
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</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Folder 09</th>
<th>Item No. 253-103-213. General arrangement, 1917 December 8</th>
</tr>
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<tbody>
<tr>
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