Med. 8vo. XV+628 pages 215 illusirations 42/- net.

ARTICULATED LOCOMOTIVES

LIONEL WIENER Professor at the University of Brussels



CONSTABLE & CO. LTD. 10 & 12 ORANGE STREET LONDON W.C.2.

CONTENTS

BOOK I. ARTICULATED LOCOMOTIVES PROPERLY SO CALLED

PART I .- ARTICULATED LOCOMOTIVES HAVING ONE DRIVEN AND ONE UNDRIVEN BOGIE

Single-boiler Fairlie-Mason-Fairlie Single-boiler-The Johnstone Singles.

PART II.---ARTICULATED LOCOMOTIVES WITH ONE ENGINE AND

TWO DRIVEN BOGIES Transmission by Gearing : The Shay—The Climax—The Baldwin Transmission by Rods and Gearing: The Neath Abbey-The Winterthur Geared The Heisler Geared.

Transmission by Quill Joints : The Cowles System

Transmission by Coupling Rods : Behne's Patent Locomotive

PART III .- ARTICULATED LOCOMOTIVES WITH TWO ENGINES AND

TWO SETS OF DRIVING WHEELS

Transmission by Gearing

Transmission by Quill Joints : The Krauss System Transmission by Chains : The Schwartzkopff System Transmission by Coupling Rods—The Meyer Group.

The Meyer Simple-The Winterthur Snow-plough-The Meyer Compound The Meyer-Kitson Locomotives with the Cylinders at the Rear of each Truck Compound Tank Locomotives built in America for the Sinnemahoning R.R.

Simple Tank Locomotives-Locomotives with Separate Tender

The Meyer-Kitson Locomotives with the Cylinders at the Outer Ends of the Trucks

Tank Locomotives—Tank Locomotives with Three Bogies, of which two are Driven—Combined Rack and Adhesion Locomotives

The Fairlie Group of Locomotives-The Earlier Types :

Horatio Allen's-The "Seraing "-The Pattison-Thouvenot's System The Fairlie Double-boiler group of Locomotives

The Fairlie Double-boiler Proper-The Mason-Fairlie Double-boiler-

The Péchot-Bourdon Double-boiler-Compound Fairlie Double-boiler

Two-boiler Fairlie Locomotives

The Johnstone-The Fairlie Two-boiler

Single-boiler Fairlie Locomotives with two Steam Bogies

Single-boiler Fairlies-Single-boiler Modified Johnstone

The Ravenglass and Eskdale-Modified Fairlie, North British Type-

The Golwé.

The Garratt Locomotives

Simple Garratt with 4 H.P. Cylinders-Simple six and eight-cylinder Garratts

-Compound Garratts

Types derived from the Garratt

Garratt-Mallet-Turbine Garratt-The Union-Garratts

The du Bousquet Locomotives

The Wiener-Neustadt-The du Bousquet.

BOOK II.-SEMI-ARTICULATED LOCOMOTIVES

PART I.-SEMI-ARTICULATED LOCOMOTIVES WITH A SINGLE ENGINE

AND TWO DRIVEN TRUCKS

Transmission by Chains : The "Bavaria "-The Winterthur Type

Transmission by Gearing : Baldwin Geared Semi-articulated-The Engerth Locomotives Proper-The Orenstein and Koppel System-The Henschel

Type of Geared and Rod Locomotive.

Transmission by Reciprocating Mechanism

Transmission by Rods located on the Axis of the Locomotive

Maffei's-The Thouvenot-The Weidknecht-Roy's Locomotive-Rarchaert

-The Dredge and Andrew Stein

Convergent Axles coupled by Oscillating Levers

Rarchaert Type-Gouin and Larpent-Maffei's System-The Hagans

Coupling through Driven Countershafts

Maffei's-Weidknecht's-Köchys-Gouin's-Boutmy and Gouin-Aliger's -Kirchweger's-The Fink-The Rarchaert.

CONTENTS (continued)

Coupling by Coupling Bars of Variable Length Norris, Fretel, Vogel and Neuhaust-The Klose. Transmission by Quills

The Heywood-The Klien-Lindner-The Krauss-Helmholtz Bogie

PART II.-SEMI-ARTICULATED LOCOMOTIVES WITH TWO ENGINES

AND TWO SETS OF DRIVING WHEELS

The Rear Set only is Mobile :- The System of Tourasse and Hardery-The Cockerill-Semmering-Boutmy's-Rimrott's-The Hanomag-The Esslingen Rack and Adhesion Semi-articulated Locomotive.

The Front Set only is Mobile : The André Koechlin.

The Mallet Group of Locomotives

Mallet Tank Engines-Mallet Tender Locomotives.

Modified Mallet-

Altered Compound Mallets with the Cylinders in the usual Position

Mallets with Articulated Boiler-Mallets with two Diameters of Driving Wheels

-Combined Rack and Adhesion Mallets-Triplex Locomotives.

Mallets with Altered Cylinder Arrangements

Single-expansion with 4 H.P. Cylinders-Locomotives with Cylinders grouped at the centre-Locomotives with the Cylinders at the Extreme Ends

Twin or Duplex Locomotives : Two Locomotives Coupled

Simple Twin-Compound Twin-The Weidknecht Patent Twin-The Lange and Livesey Patent Twin-Stephenson's Patent Twin

One Locomotive carried on Two Carriages.

BOOK HI.-TEMPORARILY ARTICULATED LOCOMOTIVES OR LOCOMOTIVES WITH AUXILIARY ENGINES

Auxiliary Engine to the Fore Carrying Axles

The Krauss-The Esslingen Combined Rack and Adhesion

Locomotives with Intermediate Driving Axles

Auxiliary Engine acting on the Trailing Carrying Axle-The Booster-The Reversible Booster.

BOOK IV.-UTILISATION OF THE TENDER'S WEIGHT FOR PROPULSION

PART I .--- NO ENGINE TO THE TENDER

Transference of a Portion of the Tender's Weight to the Locomotive :

Millers—Thouvenot's—The Modified Engerth—The Engerth-Creusot— The Behne-Kool—The Stutz—The Beugniot—The American Geared Locomotives

Tender without an Engine but with Driven Axles

Transmission by Chains-The Bavaria

Transmission by Gearing-The American Geared Shay and Climax Systems Transmission by Countershaft-Maffei's-Dredge and Stein's

Transmission by Connecting Rods-De Bergue's.

PART II .- STEAM TENDERS

Locomotives with Permanent Steam Tenders :

Verpilleuxs'-The Baldeyrou and Verpilleux-The Sturrock Steam Tenders-Maurice Urban's Steam Tender-Mallet Locomotive with Steam Tenders-Mallet Locomotives with Combined Rack and Adhesion Steam Tenders-Lartigue Monorail Combined Rack and Adhesion-Lartigue Monorail Steam Tender-The Poultney.

Locomotives with Temporary Steam Tenders :

The Bethlehem Auxiliary Engine-The Tender Booster.

APPENDICES

I.-Chronological List of Systems of Articulated Locomotives.

II.—Alphabetical List of Inventors of Articulated Locomotives Systems.

III .- Alphabetical List of Railways quoted in this Work, and which have used or use Articulated Locomotives.

IV.—Alphabetical List of Locomotive Builders of Articulated Locomotives quoted in this Book.

V.-List of Tables of Principal Dimensions of Articulated Locomotives. VI.-List of Illustrations.