

14 Facet
332

THE

Street Railway Journal.

INDEX TO VOLUME XX.

July to December, 1902.

Street Railway Publishing Co.,
114 Liberty Street,
New York.

79093

INDEX TO VOLUME XX.

(Abbreviations: * Illustrated. c Correspondence.)

A

Acceleration: on City & South London Railway [McMahon] *228
 —Increased in Boston [Knowlton]..... 98
 —on Lake Shore Electric Railway..... 832
 —Methods of Plotting [Mailloux]...32, *51, *121
 *199, *231, *254, *275
 —on Metropolitan Railway, Paris..... *305
 —Tests, on Aurora, Elgin & Chicago Railway 316
 of Berlin-Zossen Railway *145
 Dayton Interurban Road *326
 on Liverpool Overhead Railway.... *108
 on New York Central Railroad [Arnold and Potter]32, *46, 56
 —(See also Speed-Time Curves.)
 Accidents: Claims, Adjustment of [Starring]. 651
 Comments on 638
 Blanks, S. F. & S. M. Railway..... *788
 Easton, Pa., Settlement of..... 997
 Handling of [Dibbs] 365
 against Yonkers Railway..... 819
 —on Electric Railroads [Barnes].....371, 392
 Comments on 380
 —Insurance for Baltimore Company's Employees 99
 —from Legal Point of View [Daly]..... 397
 —Pittsfield345, *348, 748
 —Wrecking Equipment 702
 —(See also Employees.)
 Accountant, Duties of [Calderwood]..... 29
 Accountants' Association of America: Detroit Convention, Editorials on.....642, 701
 Papers and Reports 702
 President Mackay's Address..... 717
 Proceedings, Comments on 763
 Secretary and Treasurer's Report... 719
 —Officers 671
 —Officers and Executive Committee, Portraits 595
 Accounting: Auditor, Relation to Stockholders 25
 Audits, Necessity for 26
 Blanks used in Freight Transportation [Lang] 503
 as a Business [Calderwood] 29
 Car-Mile vs. Car-Hour as Standard of Comparison 848
 Department of Interurban Railways [Brockway] *508
 Distribution of Accounts [Emerson].... 315
 Dividends, Payment of [Reckitt]..... 27
 for Freight and Express Business [Parker] 620
 Handling Coupons [Pattee] 314
 for Material and Supplies, and Report on Standard Blanks *709
 Power House [Danforth] 370
 Reserve Funds, Creation of [Manning].. 25
 Standard Form of Report..... 763
 [Emerson] 915
 Report on [Ham] 712
 Standard System of Accounts, Report on, Stationery Store Room [Shurtz]..... 712
 Utility of Reserve Accounts [Kittredge]. 160
 Advertising for Traffic (see Traffic, Advertising for and Traffic Circulars.)
 Air Brakes (see Brakes, Air.)
 Air Compressors (Christensen)..... 768
 American Car Company's Plans..... 770
 American Institute of Electrical Engineers, Library Gift 596
 American Society of Mechanical Engineers, Meeting of 880
 American Street Railway Association: Convention, Exhibits 672
 Notes601, 637
 President Vreeland's Address..... 610
 Letter on 792
 Proceedings610, 664
 Programme237, 271

— Space Allotment for Exhibits..... 120
 — Transportation Arrangements 357
 —New Officers 617
 —Officers and Executive Committee, Portraits 495
 —Report of Committee on Standards..... 814
 —Work of Committees c792
 American Street Railway Systems, Notes Regarding Some [Hamilton] 180
 Anderson Union Traction Company: Indiana, Test on [Renshaw] *522
 —(See also Indiana.)
 Armatures (see Motors, Electric).
 Atlantic City, Electrolysis Ordinance in..... 962
 Auburn-Syracuse Interurban Road, Power Station Equipment 432
 Auditor, Duties of 25
 Audits, Necessity for..... 26
 Augusta: Railways & Light Company of America, Interests 628
 Aurora, Elgin & Chicago Railway.316, 493, *566, 882
 Advertising Leaflets *840
 Automobile: Reckless Driving..... 779
 Speed Regulations for..... 347
 Tower Wagon, Columbus (McCardell)... *998
 Automotoneer (G. D. Co.) *262
 Auto-Trolley Omnibus (see Trackless Trolley Omnibus).
 Axles; for Interurban Railway in Michigan.. *8
 —(See also Wheels.)

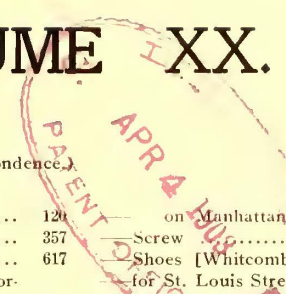
B

Baltimore, Large Station for 72
 Power Development at..... 962
 Bearings, Brass and Motor, Manufacture of (Brady) 819
 Bcit, Alfred, Character Sketch of..... 768
 Berlin: Elevated Railway, Contact Shoe [Hanchett] *13
 Press Educated in Street Railway Operation [Magee] *746
 Berlin-Zossen: High-Speed Railway Tests,
 New Locomotive for *145, 163
 *782
 Block Signals: (A. E. S. Co.)..... *60
 on Interurban Lines [Wentworth]..... 793
 Staff System235, 669
 for Switches in Detroit..... *456
 System, Consideration of219, 919
 [Emerson] 235
 (Storm) *213
 for Urban and Interurban Railways [Palmer] 650
 Comments on 639
 (U. S. E. S. Co.)..... 58
 —(See also Despatching.)
 Boiler Cleaner, Mechanical (Garrigus)..... *586
 Boilers for Pennsylvania Railroad Station (Sederholm) *339
 Boston: Elevated Railway, Annual Report.. 945
 Charlestown Station *118
 Company, Special Meeting of..... 130
 Harbor Tunnel 432
 and Lowell, Through-Car Service Between 851
 Mail Cars in 74
 Subway Litigation45, 778, 960, 993
 Boston & Maine Railroad, Concord and Manchester Branch of *921
 Boston & Worcester Electric Railway..... *550
 Brakes: Air (Neal) *185
 New Works for Knell Air Brake Manufacturing Company 586
 and Brake Tests [Spencer] *178
 in Europe [Poetz] 250
 Head and Brake-Shoe, Report of Committee on Standards 814
 Investigation in Massachusetts..... 429
 Power, in Massachusetts 777
 Rigging, Equalizing, used in Grand Rapids *102

on Manhattan Railway *910
 Screw c*720
 Shoes [Whitcomb] c720
 for St. Louis Street Cars.....214, 280
 Track (Estler)..... *338
 Braking Curves of [Mailloux]...32, *51, *121, *199, *231, *254, *275
 Interurban Car 750
 Problems of 1004
 [Parke] 1011
 —Tests of on Berlin-Zossen High-Speed Railway *145
 on Elevated and Interurban Roads [Keiley] *1015
 Panzarasa c*745
 Bremgarten-Dietikon Interurban Railway.... *738
 British Columbia Electric Railway Company, Employees to share Profits..... 271
 British Electric Railway Practice..... 873
 Brooklyn: Bridge, Terminal Plan..73, 91, 100, 203, 220, 977
 Elevated Trucks and Cars in..... *986, 1026
 Brooklyn Rapid Transit: Annual Report of.663, 794
 Elevated Railway Equipment..... *986, 1026
 Employees' Benefit Association..... *950
 Entertainment 963
 Organization Chart 101
 Repair Shops *106, *954
 Track Construction, Paper on [Brackenridge] 766
 Tunnel115, 128, 169, 406, 818, 821, 941
 Brownell Car Works acquired by American Car & Truck Company 784
 Brussels: Tramway Conduit Construction.. *328
 Wheels used in..... *903
 Buda-Pest, Stadtbahn & Underground Railway, Wheels used on..... *905
 Buenos Ayres Grand National Railway, Electrical Equipment for 198
 Buffalo, Dunkirk & Western Railway..... 791
 Buffalo, International Traction Company, Annual Report 360
 —Increase of Wages on..... 356

C

Car Construction: in Detroit Railway Shops. *450
 for Interurban Railways *538, 861
 Manhattan Railway, New York..... *907
 Car Gate, Elevated (Bliss)..... *238
 Car Houses: Concord, Mass. *923
 Doors, Rolling (Kinnear) *593
 at Wallasey (Kinnear) *186
 Floors, Brick for [Gorman] c258
 Nottingham Street Railway *836
 Queen's Road, Manchester, England.... *300
 and Repair Shops, Minneapolis.....357, 625
 Various Labor-Saving Devices in..... 1019
 Worcester and Southbridge, Mass. *892
 of Zurich Street Railway..... *730
 Car-Lighting: Circuits [Gorham]..... 747
 Wireless Clusters for..... *941
 Car Replacer (Heitzman) *591, 663
 Car Register (see Register).
 Car Roof, Painting of 816
 Car Sign, Reversible Electric (R. E. C. S. Co.) *340
 Car Ventilator (Pullman) *593
 Cars: Allentown (Closed) *593
 Ballast (W. W. S. Co.)..... *628
 Brooklyn Elevated (Closed)..... *105
 (Open) *985
 Camden (Closed) *430
 Chicago Tribune (Distributing)..... *99
 Cincinnati (Closed) *784
 Cleveland (Observation) 274
 Concord (Closed) *921
 (Parlor) *352
 Detroit Convention (Parlor and Sleeping), G. C. Kuhlman Company *695
 United Railway [Farmer] *444
 Fort Wayne (Closed) *337



- High-Speed Interurban Service.....*539, 861
—London (Fireproof) *604
—Manchester (Illuminated) *224
—Manhattan Railway (Closed and Open),
.....*907, *912
—Manitowoc (Convertible) *769
—Metropolitan Railway, Paris (Closed).... *305
—Mexico (Horse) *337
—New Hampshire (Open) *596
—New York City Subway (Closed)..... *382
—Old Orchard Beach (Open) *184
—Oneonta (Parlor) *186
—Philadelphia (Closed) *58
—Redwood, N. Y. (Open) *105
—Sandusky (Combination) *60
—St. Louis (Laclede) 859
— (Open) *279
—Stroudsburg (Semi-Convertible)..... *998
—Sydney, N. S. W. (Combination)..... *929
—Track-Laying (Roberts) *339, *583
—Tyronc, Pa. (Semi-Convertible)..... *1027
—West Indies (Open) *283
—Wilkesbarre (Closed) *938
—York, Pa. (Open) *329
— *33
Cardiff, Corporation Tramways *103
Cattle Guard (Climax) *103
Census Bureau: Relations to Accountants' Association 710
—Report of Electrical Manufactures 430
—Report of Power Employed in United States 796
Central Waterworks Association, Indianapolis Meeting 625
Chicago: Board of Aldermen Transportation Committee's Visit to New York.183, 259
—City Railway Company's Troubles Arbitrated 432
—Electrical Association, Officers 962
—Elevated Traffic Report 248
—Franchise Ruling in 778, 789, 846, 945
—Northwestern Elevated Annual Report 849
—Removal of Sleet from Metropolitan Elevated Third Rail 1019
—Shifting Elevated Tracks in *223
—Street Railway Situation in 412
—Subway Franchise Terms..... 1026
—Union Traction Company's Annual Meeting 183
— Arbitration of Wages 813
— Assessment on Capital Stock..... 942
— Taxation 942
— Transfer System of... 803, 832, *839, 927, 999
Cincinnati: Extension of Franchises Declared Invalid 283
—Georgetown & Portsmouth Railway, Electricity on 260
—Interurban Terminal Station *270
—Suburban Railway Consolidation..... 819
—Traction Company, Personnel of..... 791
— Plan of Promotion of Employees... 810
—Traction Interests 765
—Widener-Elkins and Pomeroy-Mandelbaum Deal 431, 849
Circuit-Breaker: Automatic Car-Type (Westinghouse) *238
—Automatic Oil (Hartman) *187
—(I. T. E.) *139, *585
Cleveland: Electric Railway Company, Advertising Leaflets *985
—Freight Station for Interurban Roads... 130
—Perpetual Franchises in 343
—Three-Cent Fare..... 115, 128, 214, 262, 820
—Widener-Elkins and Pomeroy-Mandelbaum Alliance (see Cincinnati).
Clow, James B., & Sons Company, New Building, Description of..... 214
Coal Conveyor: Electrically Operated, Variable Speed Control [Keilholtz] *874
— at Staten Island Plant and Third Avenue Station (Robins) *584
—Famine in Detroit 1010
Colorado Rate War Settled 101
Colorado Springs, Rapid Transit System... *70
Commutator Truing Device..... *336
Concrete Breaker used in Detroit..... *458
Concrete for Car-House Construction *730
Condenser with Spraying Apparatus (Cosmopolitan) *591
Conduit, Electric: Construction, Brussels Tramways *328
—Method of Testing for Grounds (Gerard)..... *332
—Systems in Europe and America [Ziffer].
Connecticut Railway & Lighting Company: Annual Report of 965
—Extension 962
Control: Huber's Method of [Bell] 9
—Multiple Unit System of [Winsor] 786
—Voltage Control [Leonard] *868
Controller: Handle, Automotoneer for (G. D. Co.) *262
—Regulator (New Haven) *594
— (See also Automotoneer.)
Corea Electric Railway Re-equipped..... 770
Corporations, Dividends, Legal Status of... 27
Coupling used on Manhattan Railway..... *911
Crockcr-Wheeler Branch Office Managers' Convention 595
Cuba: Havana & Janitos Railroad Company Organized 433
Current Collector, for Trackless-Trolley Omnibus (Lombard-Gerin) *173
—(See also Trolley and Third Rail.)
Cut-Off Saw (Woods) *592
- D**
- Dayton & Northern Traction Company's Interurban Road *319
Detroit: Apparatus used in 597
—City and Interurban System of.....*437, 492
—Coal Famine in 1010
—Convention (see American Street Railway Association).
— and Lake Shore Railway, Sale of..... 960
—Rapid Railway, System of..... *478
—Three-Cent Fares 469
— and Toledo Shore Line, Sale of..... 432
—United Railway Organization..... *468
—Ypsilanti, Ann Arbor & Jackson Railway *485
Dick, Kerr & Company, Ltd., London, Annual Report 628
—Changes in 261
Directors, Liability and Discretion of, as to Dividends 27
Despatching Cars: on Detroit Interurban Railways *476
—on Interurban Lines [Mitten] 399
—Practice of Toledo, Fostoria & Findlay Railway *414
—by Telephone 164
—Comments on 919
Double Trolley, Chicago Tribune Comments on 1018
Dunedin (New Zealand), Electric Tramway System 341
- E**
- Easton, Pa., Settlement of Accident Claims.. 997
Edgewater, New Jersey & Hudson River Railway & Ferry Company, Ferry of.. *75
Electric Storage Battery Company, Annual Convention 817
Electric Traction: Changes, as shown by Power Stations 116
—Securities 1022
Electrolifer for Cars (Benjamin Company)... *941
Electrolysis by Return Currents [Anderson] 625
Elevated Railways: Moving Track in Chicago *223
—(See also Berlin, Brooklyn, Boston, Chicago and New York.)
Elmira Water, Light & Railroad Company, System of *17
Emergency Wagons, Equipment of..... 702
Employees: Baltimore Company to Insure Lives of 99
—Benefit Association at Mobile..... 964
—Club Rooms, Brooklyn Rapid Transit... *959
—Rochester Railway Company..... 262, *705
—Washington Traction & Electric Company 274
—Discipline of 870, 871, 975
— [Bradley] 991
— [Hibbard] 991
— [Fairchild] 367
—Comments on 380
— [Mitten] 934
— [Satterlee] 653
—Comments on 639
— [West] 992
— [Wheatly] 869
— and the Demotion System [Harrington] 333
— on Detroit United Railway [Stanley] 440
— Northwest Railway Club, Discussion on 872
—Duties of Motormen (New Pub.)..... 62
- Entertainment for Brooklyn Rapid Transit Company's 963
—Instruction for *335
— [Lambert] c258
—Method of Paying in New York..... *867
—Mutual Benefit Associations [Root]..... 618
—Comments on 639
— of New York State, Street Railway Company 426
—Premiums for Immunity from Accidents. 1026
—Profit Sharing by British Columbia Electric Railway Company, Ltd..... 271
—Repair Shops, Piece-Work Wages [Richards] 1022
—Rhode Island Ten-Hour Law..... 359, 1027
—Standard Rules for Government: of New York Street Railway Company..... 426
—Report of Committee on..... 426, 656
— [Wheatly] 811
—Comments on 804
—Wages: Chicago Union Traction Company 813
— Increase of, in Different Cities.356, 847, 882
Engine Builders' Association, Meeting of... 964
Engineering Record, Sale of..... 810
Engines: Charlestown Power Station, Boston *118
—Fly-wheel Capacity for Engine-Driven Alternators [Schmidt] 956
— [Slichter] *957
—Gas, Double-Acting (De Le Vergne).... *936
— in Power Stations in Europe [Thonet] 209
— at Tornavento 897
—Oil, Davol 1023
—(See also Power Stations.)
England, Municipal Ownership in [Porter].153, 163
— [Rider] 110
Erie, Pa., Traffic Circulars in..... *1009
Evansville & Princeton Traction Company, Plans 430
Everett-Moore Affairs 188
Express Transportation: Interurban and Suburban 413
— and Mail, in Europe [Marsal] 226
— and Package Transportation [Parker].... 620
- F**
- Fare Boxes, Stealing from..... 102
Fare Register: "Ohmer" *771
—Tests in Brooklyn 594
Fares: Cleveland Three-Cent..... 115, 128, 214, 262
—Collection and Registration of [Sampson] *706
—Comparative Tables, of England and United States [Porter] 154
—Detroit Three-Cent 469
—on Indiana Interurban Lines..... 360
—Omnibus vs. Trolley, in England..... 244
—(See also Transfers.)
Feeders: Distribution for Electric Railways [Adams] 791
Feed-Water: Heater (American) *59
—Computing Heating Surface Required in 103
—Softening Apparatus, Automatic (Kennicott) *587
Fender, Investigation of in Massachusetts... 429
Ferry Boat of New Jersey & Hudson River Railway & Ferry Company..... *75
Finance: Annual Report of American Railways Company, Philadelphia 419
—Boston Elevated Railway..... 945
—Brooklyn Rapid Transit Company... 633, 794
—Connecticut Railway & Lighting Company 965
—Glasgow Corporation Tramways... 261, 798
—International Traction Company, Buffalo 360
—Manhattan Railway Company 820
—Comments on 831, 850
—Massachusetts Electric Companies... 996
—Montreal Street Railway Company... 815
—Northwestern Elevated, Chicago..... 849
—Pennsylvania Railway Commission... 994
—Union Traction Company, Philadelphia 419
—Comparative Cost of Construction of Narrow and Standard Gage Tracks [de Burlet] 225
— of Erection of Gas, Steam and Water Power Stations in Europe [Thonet].... 210
— of Power-Station Operation in Europe [Thonet] 211

—Cost of Construction and Operation of Trackless Trolley Omnibus in Nice... *170
 —of Protected Third-Rail Track [Potter] 153
 —Detroit & Lake Shore Railway..... 960
 —Method of Plotting Operating Statistics [Gotshall] *741
 —Purchase of Street Railway Bonds by Savings Banks 79
 Fire Insurance and High-Voltage Circuits... 993
 Fonda, Johnston & Gloversville Railway, Traffic Circulars *1009
 France: Statistics of Light Railways and Tramways 768
 —(See also Paris.)
 Franchises: in Chicago..412, 778, 789, 846, 945, 1025
 —Cincinnati Extension Invalid..... 283
 —Cleveland Street Railway.....234, 343
 —Conditions Required in Massachusetts... 432
 —Customs of American Cities in the Matter of 192
 —Legal Restrictions on Electrical Supply, by Street Railways [Adams] 236
 —Manila Street Railway760, 998
 —of Metropolitan Street Railway Company, Kansas City, Mo. 261
 —Nash Code in Ohio 353
 —of New Jersey & Pennsylvania Traction Company 793
 —Special Conditions in245, 269
 —State Control of 220
 —Taxation in New Jersey 847
 —in New York.....129, 945, 963
 —Waltham, Decision on Street Railway Location in Massachusetts431, 432, 607
 Freight: Electric Locomotives for.....*353
 —Legal Right to connect with Steam Railroads 66, 77
 —Station for Cleveland Interurban Roads.. 139
 —Terminal Stations 268
 —in Cincinnati*270
 —Transportation on Detroit Interurban Roads 459
 —and Express on Interurban Electric Railways [Lang] *500
 —of Toledo & Western Railway.... *862
 —in Pittsburgh, abandoned..... 361
 —Way Bills, Toledo & Western Railroad. *864
 —(See also Express Transportation.)
 Fritz, John, Medal 258
 —Banquet 795
 Fuel: Oil, Tests of59, 373
 —Use of 805

G

Gage, Standard vs. Narrow, for Suburban Railways [de Burlet] 225
 Gas Engines (see Engines, Gas).
 Gate (see Car Gate).
 General Electric Company's Exhibit, Detroit Convention *693
 Generators: in Power Stations in Europe [Thonet] 210
 —(Siemens) *62
 —and Motors, "Ceco" (Christensen)..... *697
 Geneva, Strike in 796
 Georgia Railway & Electric Company, Increase in Wages of 847
 Glasgow Tramways, Annual Report of.....261, 798
 Grade Crossings, Legislation on, in Massachusetts 71
 Grade Stated in Per Cent [Hering]..... 99
 Grand Rapids Railway, Brake Rigging used on *102
 Grand Rapids, Grand Haven & Muskegon Railway, System of *1

H

Halifax (England), Tramway System of.... *293
 Hanger and Ear, Damaged *583
 Hartford, Track Construction in..... *806
 Havana & Janitos Railroad Company's Plans. 740
 Heater, Electric (Prometheus) *595
 Heavy Electric Railroading: [Bell]..... 9
 —Electrical Equipment for 947
 —around London [Dawson] 526
 —Legal Injunction against Use of Tracks, in Ohio 370
 —near Paris, Notes on *807
 —Possibilities of Electricity in.....31, 703
 —Suburban Traffic 243
 —Tests on New York Central Railroad [Arnold and Potter]32, *46, 56

—(See also Interurban Railways and Third Rail.)
 High-Speed: on Aurora, Elgin & Chicago Railway *566
 —on Berlin-Zossen Line.....*145, 163
 —Electric Railway in Indiana..... *97
 Hudson Valley: Decision on Connection with Steam Railroad Tracks..... 77
 —Electric Railway, Plan of 16
 —Strike.....370, 404, 419, 627, 720, 775, 787, 795, 833
 Hutchins, J. C., Biographical Sketch, with Portrait 642

I

Illinois, Interurban Railways *10
 Incorporated Municipal Electrical Association, Annual Convention 181
 Indiana: Electric Interurban Railways in.. 272
 —Fares on Interurban Lines in..... 390
 —Trolley Construction in Southern..... 350
 —Union Traction Company's Electrical Apparatus 627
 —Tests on [Renshaw] *522
 Indianapolis: Interurban Lines.....343, 961
 —Lebanon & Frankfort High-Speed Railway *97
 —& Northwestern Traction Company, Financing 1026
 —Shelbyville & Southeastern Traction Company's Line 431
 —Street Railway, Lease of 995
 Indicator Take-Up Device..... 772
 Insulator: High-Voltage Transmission (Brookfield) *940
 —(Locke) *238, *594
 —for Third-Rail at Grand Rapids..... *4
 International Street Railway Congress, Possibilities of976, 995
 International Tramway Association: Convention, American Interest in..... 193
 —Meeting *205, *225
 —Officers and Executive Committee, Portraits 207
 Interurban Railways: Advertising (see Traffic Advertising and Traffic Circulars).
 —Accounting Department [Brockway].... *508
 —Block Signals for (see Block Signals).
 —Car Despatching (see Despatching Cars).
 —Car Equipment [Potter] 514
 —Cars for High-Speed *539
 —Car Tests of Union Traction Co., Indiana [Renshaw] *522
 —Centering in Detroit *437, 492
 —Collisions on 919
 —Freight Station, Cleveland 139
 —in Indiana 272
 —in Northern Illinois *10
 —Operation of Electric [Wood] *483
 —Passenger Station at Toledo..... *704
 —Promoters and Their Methods..... 778
 —Terminal Station in Cincinnati *270
 —Service 129
 —Track Construction 402
 —Trucks for [Uebelacker] *517
 Italian Letter 774
 Italy: Third-Rail Traction in..... *896

J

"Jim Crow:" Cars in Louisiana..... 80
 —Law in New Orleans (see New Orleans).

K

Kiew, Russia, 200-hp Engine in..... *281
 Kincaid, Waller & Manville, Changed to Kincaid, Waller, Manville & Dawson.. 261
 Kingston Consolidated Railway, System of.. *1006

L

Lake Shore Electric Railway, High Speed on 832
 Legal: Accidents on Street Railways [Daly] 397
 —California Freight-Carrying Franchise, Decision in..... 807
 —Car License Fees in New York..... 1014
 —Cleveland, Three-Cent Fare Injunction.. 262
 —Constitutionality of Massachusetts Railway Law 1018
 —Decision against Boston Elevated for Damage to Property by Noise.....267, 280, 944
 —Franchise Ruling in Chicago778, 789
 —Joint Use of Tracks in Philadelphia..... 848

—Liability for Negligence under Modern Conditions 823
 —Massachusetts Supreme Court Decision in Street Repair Cases 188
 —Notes83, 132, 285, 823, 852
 —Right of City to tear up Tracks..... 129
 —Right of Way, of Ambulance and Fire Engine 132
 —in Ohio for Interurban Roads.....799, 944
 —Sensational Exhibits and Episodes in Accident Cases 285
 —Status of Reconstructed Steam Roads, Ohio 370
 —Steam Railroad Connections with Electric 66, 77
 —Ten-Hour Law Constitutional in Rhode Island267, 359
 —Transfers, Decisions on....629, 778, 789, 975, 999
 —Testimony of Physicians as to Declarations by Patients 83
 Levis County Railway: Opening of..... 997
 —Work 131
 Lifting Jack of Railway & Electric Supply Company of New York..... *185
 Lightning Arrester, Non-Arcing (Shaw)..... *187
 Lisbon, Appointment of Manager for..... 359
 Liverpool Overhead Railway, Equipment and Schedule of *108
 Locomotive, Electric: Berlin-Zossen, New.. *782
 —vs. Multiple-Unit System [McMahon]... *228
 —(Westinghouse) *253
 London: Letter.....106, 253, 358, 773, 797, 1023
 —Street Railway Development in..... 817
 —Suburban Traffic Conditions [Dawson].. *527
 —Traffic Facilities of 1024
 —Underground Railway, Fireproof Cars for. *604
 —Yerkes, Right of Way in.....215, 776
 Los Angeles, Equipment of Pacific Electric Railway *246
 Lost Property, Care and Distribution of [Tully] 395
 Lowell, Mass., Trackless Trolley in..... *351

M

Magnetic Devices for Increasing Traction.948, *953
 Mail: Cars in Boston 74
 —Cars, Union Opposition to..... 947
 —and Express Transportation in Europe [Marsal] 226
 Manager, Carnegie's Opinion on Relation of Owners to 803
 —(See also Employees, Discipline of.)
 Manchester, New Power Station and Car House *300
 Manila Street Railway Franchise Bill passed. 760
 Maps: Aurora, Elgin & Chicago Railway.. 567
 —Cardiff 38
 —Concord & Manchester Railway..... 923
 —Detroit Interurban Railways, showing Freight-Car Distribution on..... 463
 —showing Electric-Power Distribution. 466
 —Detroit United Railway..... 464
 —Elmira 18
 —Grand Rapids, Grand Haven & Muskegon Railway 3
 —Indiana, showing Interurban Railways... 273
 —Indianapolis, Lebanon & Frankfort Railway 97
 —Kingston 1008
 —London Boroughs 535
 —Tramways 526
 —Tube Railways 527
 —Massachusetts 553
 —Michigan, showing Detroit United Railway and Rapid Railway 461
 —showing Electric Lines Radiating from Detroit 439
 —Milan-Porto Ceresio Railway 992
 —Nice-Upper Monte Carlo..... 171
 —Northern Illinois, showing Interurban Railways 11
 —Ohio, showing Toledo, Fostoria & Findlay Road 414
 —Pennsylvania, showing Oley Valley Railway 560
 —Seattle-Tacoma Interurban Railway..... 76
 —Southern Indiana 350
 —of St. Louis Exposition Grounds..... *736
 —Steam Railways terminating in London.528, 529
 —Sutton & Howth Railway, Ireland..... *166
 —Toledo & Western Railway..... 865
 —Washington, Baltimore & Annapolis Interurban Railway 350

- Youngstown-Sharon Railway & Light Company 141
 —of Zurich *726
 Massachusetts: Annual Report of Electric Companies 996
 —Bill to provide for Purchase of Bonds by Savings Banks 79
 —Brakes, Jacks and Fenders in [Crafts]... 429
 —Hearing on Use of Fenders, Jacks and Power Brakes in 625
 —Legislation in 71
 —Paving Suit 1018
 —Power Stations, Turbo-Generators in (G. E. Co.) 882
 —Railroad Commissioners, Investigation of Railways 815
 —Ruling on Location, Whatley..... 775
 —Safety Appliances on Street Cars..... 777
 —Speed of Cars in 386
 —Waltham Street Railway Company's Extension 431, 432, 607
 Master Mechanics' Association, Organization Plans 640, 671
 Mayer & Englund Company, New Building of *589
 Mechanical Engineers, Annual Meeting of... 964
 Melbourne, Plans for Electric Railway in... 821
 Milford, Holliston & Framingham Street Railway Time Table 130
 Minneapolis Car House and Repair Shop of Twin City Rapid Transit Company.... 357
 Mobile, Employees' Benefit Association at... 964
 Monorail Roads projected in Scotland..... 56
 Monterey (Mexico), Street Railway Company, Organization 914
 Montreal Street Railway Company, Annual Report 815
 Motors: Air Blast for 244, 942
 —Bearings, Wear of 162
 —for Interurban Railways [Potter]..... 514
 —100-hp, on Liverpool Overhead Railway... *108
 —10,000-Volt Railway (S. & H.)..... *782
 —Oerlikon, Characteristic Curves of..... *740
 —Railway (S. K. C.) *582
 —Repairing, Quick, with Armalac..... 772
 —Report of Committee on Standards..... 814
 —Single-Phase, Problem of [Hanchett]... *983
 —for Washington-Baltimore Line..... 340
 —[Lamme] *578
 —Comments on 602
 —Transformers for Testing Railway..... *743
 —Union Traction Company, Indiana [Renshaw] *522
 (See also Acceleration.)
 Mountain Railways, Financial Possibilities of 65
 Multiple-Unit Control System: [Winsor]... 786
 —on Aurora, Elgin & Chicago Railway... *566
 —at Concord *921
 Municipal Ownership: in England [Porter], 153, 163, 310, 413
 —[Rider] 110
 —Fallacies of 221
 —proposed in Illinois 960
 Municipal Tramway Managers of Great Britain, Association Papers 176
- N**
- Nashville Street Railway: Improvements... 775
 —Litigation 698
 —New Electrical Equipment for..... 882
 Newark, North Jersey Street Railway, Annual Report of 280
 New England: Street Railway Club, Meeting of 786, 923, 1019
 —Outing of 79, 370
 —Trackless Trolley in 191
 New Haven, Strike at 229
 New Jersey: Franchise Taxation in..... 847
 —Trolley Tunnel 982
 New Orleans: "Jim Crow Law" in... 804, 859, 880
 —Street Railway Consolidation..... *243, *248
 —Strike at 609, 663, 948
 New Publications: 62, 104, 131, 798, 944, 997
 —around Rochester 965
 —Poor's Manual for 1902 818
 New York Central Railroad: Advertising... 1022
 —Plans of 65, 212, 948, 961
 —Tests on [Arnold and Potter]..... 32, *46, 56
 —Tunnel, Electrical Equipment of..... 357
 New York City: Blackwell's Island Bridge Plans *990
 —Brooklyn Bridge, Commissioners' Semi-Annual Report 282
 —Terminal Plans.203, 220, *384, 602, *608, 977
 —Car License Fees in 1014
 —Interborough Railway Company, Cars for *382
 —East Side Subway Plans..... 984
 —Injunction 24
 —Steam Turbines for..... 81
 —Manhattan Elevated, Company, Consolidation with Interborough Company... 877, 918, 965
 —Removal of Sleet from Third Rail.... 1003
 —Reports 373, 820, 831, 850
 —Rolling Stock of *907
 —Metropolitan Street Railway Association, Meetings of 79, 624
 —Metropolitan Street Railway Company, Construction Department, Pay Department of *867
 —Maximum Traffic at Crossings..... 1010
 —Outing of Company's Officers..... 258
 —Storeroom Methods of [Tully]..... 395
 —Pennsylvania Railroad Tunnel...16, 91, 92, 116, 129, 237, 345, 356, 432, 603, 781, 846, 861, 881, 943, 964
 —Rapid Transit Commission, Reorganization of 115
 —Removal of Snow and Ice in [Reed]..... 364
 —Second Tunnel to cross City..... 67, 69
 —Subway Contracts (see Brooklyn Tunnel).
 —Track Construction in [Reed]..... 766
 —Transportation Needs 130, 1004
 New York Railroad Club, Meeting of... 628, 766, 882
 New York State: Electric Projects in..... 64
 —Electrical Laboratory Commission..... 260
 —Railway Consolidation in Central..... 1027
 —Street Railway Situation in [Rogers]... 362
 New York Street Railway Association: Proceedings 360, *387, 421
 —Editorials on 193, 379
 —Programme 283
 —Rules for 984
 Nice, Trolley Omnibus Line..... *170
 Northern Ohio Traction Company, Reorganization of 624, 961
 Norway Tramway Statistics..... 794
 Nottingham, Street Railway System of... *834
 Nut Lock on Compound Thread Bolt (Annable) *120
- O**
- Ohio: Decision on Right of Way of Interurban Roads 799
 —Nash Code, Franchises in..... 353
 —Toledo, Fostoria & Findlay Interurban Road in *414
 Oil Filter: (Acme) *595
 —(American) *592
 Oley Valley Railway, Pennsylvania..... *560
 Omaha Street Railway, Sale of..... 239
 Omnibuses in Great Britain..... 244
 —Trackless Trolley (see Trackless-Trolley Omnibus).
 Organization Chart, Brooklyn Rapid Transit Company 101
 —Detroit United Railway 468
 Oswego Traction Company, Sale of..... 987
 Overhead Construction: of Detroit United Railway *463
 —for Interurban Railway in Michigan... *6
 —Specifications for 841
- P**
- Pacific Electric Railway, Equipment of... *246
 Paint for Iron Work (Detroit Graphite)... 596
 Painting: Car-Roof Treatment..... 816
 —Hints on [French] 766
 —Machine, Pneumatic (Hook) *941
 —Report of Committee on Standards... 815
 Paris: Heavy Electric Railroading near... *807
 —Metropolitan Railway, Improvements on... *305
 Parks: at Findlay, Ohio..... *415
 —at Elmira *19
 —Kingston *1006
 —around Rochester *194
 —for Roanoke, Va. 128
 Passengers, Disagreements with, Practice in Newark 214
 —(See also Legal).
 Passenger Stations (see Interurban Railways).
 Pawtucket Street Railway Company, Legal Proceedings against 267
 Peckskill, Lighting & Railroad Company, New Power Station of *92
- Pennsylvania: Annual Report of Railway Commissioner 994
 Pennsylvania Railroad: New Boiler Plants for Broad Street Station, Philadelphia (Sederholm) *339
 —Tunnel under Hudson River—16, 91, 92, 116, 129, 237, 345, 356, 432, 603, 781, 846, 861, 881, 943, 964
 Pennsylvania Street Railway Association, Annual Convention of..... 406
 Peoria & Pekin Terminal Railway Suit.... 849
 Philadelphia, Bristol & Trenton Railway Extension 429
 Philadelphia: American Railways Company, Report of 419
 —Rail Standard *20
 —Rapid Transit Company, Increase in Wages of 847
 —Subway Plans 609
 —Union Traction Company, Report of... 419
 Pittsburgh: Electrical Industries of, and their Economic Influence 97
 —Freight Service abandoned in..... 361
 —Railway Company Premiums..... 1026
 —Transit Improvements in..... 995
 Pittsfield Trolley Accident 345, *348
 Pole-Raising Wagons (Anderson) *590
 Polyphase Transmission: Aurora, Elgin & Chicago Railway *570
 —Boston & Worcester Railway *550
 —Danger of Overdoing 860
 —Detroit, Y., A. A. & J. Railway..... *487
 —Double-Current Generators at Worcester... *891
 —on Grand Rapids, Grand Haven & Muskegon Railway *1
 —Oley Valley Railway *560
 —Toledo & Western Railway..... *978
 Porto Rico, Interurban Road for..... 906, 963
 Power Consumption: Tests on Dayton & Northern Railway *319
 —on Detroit Interurban Roads..... *474, *481
 —on Union Traction Line, Indiana [Renshaw] *522
 Power Distribution: of Detroit United Railway (See also Polyphase Transmission.) *163
 Power-Station Accounting [Danforth] 370
 Power Stations: Auburn-Syracuse Interurban Road, Equipment for 432
 —Aurora, Elgin & Chicago Railway..... *566
 —Boston Elevated, Charlestown Station... *118
 —Boston & Worcester Railway..... *550
 —Census Report on Power in the United States 796
 —Comparative Cost of Erection and Operation of, in Europe [Thonet]..... 210
 —Designing of [Kerr] 497
 —of Detroit United Railway System [Farmer] *444
 —of Detroit, Ypsilanti, Ann Arbor & Jackson Railways *486
 —Economic Management of..... 116, 192
 —in Europe [Thonet] 209
 —Effect of High Cost of Fuel in..... 346
 —Fuel Oil for, Tests on 59
 —Halifax (England) Tramway..... *293
 —Logs used in Detroit Stations..... 447, 480
 —Manchester, England *300
 —New Baltimore, Detroit Rapid Railway.. *478
 —Nottingham *837
 —Peekskill Lighting & Railroad Company... *92
 —Prices for Current [Adams] c792
 —"Soo," Sault Ste. Marie..... *780
 —Sydney, New South Wales..... *930
 —Sylvania, Ohio *980
 —Tests, Dayton Interurban Road..... *327
 —Worcester & Southbridge, Mass..... *888
 —Working [Fell] *177
 —Youngstown-Sharon Railway & Light Co. *139
 Providence: Consolidation in 63
 —New Transfer System at 81
 —Strike 63, 69
- R**
- Rail Bonds: on Grand Rapids Street Railway *762
 —(Thomas) 588
 Rail Drill, Portable Electric, on Grand Rapids Street Railway *762
 Rail Joints, Cast-Welded: on American Street Railways [Hamilton]..... 180
 —Home-Made Outfit in Grand Rapids..... *760
 Rails: for Philadelphia, New Type of..... *20
 —Report of Committee on Standards..... 814

- Railways Company General, Change of Control in 881
- Rate War in Colorado 101
- Register (see Fare Register).
- Repair Shops: Brooklyn*106, *954
—and Car House, Minneapolis 357
—Economic Management of [Banghart].. 400
—Lathe (McCabe)*592
—Practice in America [Hamilton] 181
—Various Labor-Saving Devices in..... 1019
- Reserve Fund: Creation of [Manning]..... 25
—Importance of 159
— [Kittredge] 160
- Rhode Island, Ten-Hour Law.....359, 1027
- Richmond, Ind., New Interurban Road..... 103
- Roanoke, Va., Trolley Park for..... 128
- Rochester: Employees Club Rooms at..... *705
—Methods for Removing Snow and Ice in [Danforth] 394
—Street Railway Park in*194
- Rossiter, MacGovern & Company, Growth of
- Rotary Converter, Method of Regulating.... 748
- Rules for Employees (see Employees, Rules for).
- Run Sheets: Berlin-Zossen Tests *145
—Central London Underground Railway.. 607
—Detroit United Railway 475
—Detroit, Ypsilanti, Ann Arbor & Jackson Railway 487
—(See also Acceleration and Speed-Time Curves.)
- Running-Board, Proposed Ordinance against Riding on 411
- Russia, Electric Traction in..... 284
- S**
- San Francisco: Municipal Ownership in..... 965
—United Railroads, Improvements..... 737
- Sand Box, Revolving, on Grand Rapids Street Railway*762
- Sand and Sand Cars 859
- Sault Ste. Marie, "Soo," Water-Power Plant and Electric Railway, Opening of..... *780
- Saw, Cut-Off (see Cut-Off Saw).
- Schenectady Railway Company, Boycott against833, 847, 944
- Schuylkill Valley Railway, Recent Improvements on*68
- Seattle-Tacoma Interurban Railway.....*76
- Sherwin-Williams Company, Annual Convention of 882
- Shoes for Third Rail (see Third-Rail Shoes).
- Short, Prof. S. H.; Funeral of..... 820
—Obituary 720
- Signal (see Block Signal).
- Single-Phase Motor: (see Motor, Single-Phase).
- Sleet Cutter: on Manhattan Third-Rail, New York*914
—(See also Third Rail.)
- Smith, Dow S., Biographical Sketch, with Portrait 189
- Smoke Consumption*959
—Problem of 976
- Snow, Removal: in Borough of Manhattan [Reed] 364
—from Manhattan Railway Third Rail.....*914 ✓
—Melter for*939
—Proper Equipment and Organization for [Conway] 878
—in Rochester [Danforth] 394
- Specifications for Suburban Line..... 841
- Speed-Time Curves: Graphical Method of Making [Valentine]*303
—on New York Central Railroad [Arnold and Potter]*46
—Plotting [Mailloux].32, *51, *121, *199, *231, *254, *275
—(See also Acceleration and Run-Sheets.)
- St. Louis Exposition: Electric Railway Exhibits*222
—Classification of 91
— [Goldsborough]*734
—International Congress at976, 995
—International Jury of Awards.....337
—Rapid Transit at 628
- St. Louis: Fare Ordinance on Baden Railway 807
—Quarterly Statement of Passengers Carried 100
—Sale of American Car Company's Works.420, 941
—Suburban System for 817
- Statistics: Census Bureau on Electric Railways 342
—Light Railways and Tramways in France. 768
—London, Traffic in and around [Dawson] 526
—Norway Tramway 794
—Operating, Graphical Method of Plotting [Gotshall]*741
—Traffic and Population on Detroit Lines.. 438
—(See also Finance.)
- Steam Pipe Covering, Tests on [Stott]..... *875
- Storage Batteries: for Cars, abandoned in New York 89
—for Power Stations, Advantages of..... 67
—(Smith) 881
- Storekeeping and Lost Property [Tully]..... 395
- Strike: Camden Interstate Street Railway.. 191
—in Geneva 796
—Hudson Valley Railway.....370, 404, 419, 627, 720, 775, 787, 795, 833
—at New Haven 239
—New Orleans609, 663, 948
—in Providence 69
—Richmond, Va. 131
—in Scranton, settled 237
—in Terre Haute 63
—Sunday, Opposition to Cars in Aberdeen... 57
- Surface-Contact Systems: in Europe [Ziffer]. 252
—(Kingsland)*335
- Sutton & Howth Tramway, Ireland.....*166
- Switchboards: at Cardiff*36
—Instruments, Illuminated Dial (Keystone) *586
—Practice, L. T. E..... 430
—Modern [Davis]*751
- Sydney, Electric Railway System of.....*928
- Syracuse Rapid Transit Railway Company, Increase in Wages of..... 847
- T**
- Tacoma-Seattle Interurban Railway.....*76
- Taxation: Chicago Union Traction Company. 942
—Connecticut Railways 995
—Cleveland Railways 234
—of Franchises in New York..... 129
- Telephones: for Despatching (see Despatching).
- Tennessee, Nashville & Columbia and Nashville & Gallatin Railways, Consolidation. 763
—Terre Haute, Boycott in63, 426
- Testing: Armatures, by Transformers.....*743
—Laboratory (L. T. B. Co.) 935
- Tests: on Power Consumption, Union Traction Company, Indiana [Renshaw].....*522
—300-hp Turbine 405
- Third-Rail: on Aurora, Elgin & Chicago Railway*570
—Cleaning Device, Manhattan Railway....*914
—Construction [Potter]*150
—Expansion Joint, Italy*900
—on Grand Rapids, Grand Haven & Muskegon Railway *1
—in Italy*896
—Paris-Orleans Railway*808
—on Paris-Versailles Line.....*809
—Problems of [Hanchett]*13
—Removal of Sleet from [Hanchett]..... 745
—from Chicago Elevated 1010
—from Manhattan Elevated*914, 1003
—Seattle-Tacoma Interurban Railway.....*76
—Shoe [Potter]*150
—and Hanger, Manhattan Railway.....*910
—used in Italy*901
—in Tunnel, Sparkless Operation of..... 316
—at Wilkesbarre, Cars for*938
- Three-Phase Motors: Valtelina Three-Phase Railway, Opening of..... 733
- Three-Wire System, on City & South London Railway [McMahon]*228
- Ticket Destroyer (Patten) 59
- Tickets: on Detroit Interurban Railways....*473
—on Boston & Maine Railway..... 927
—(See also Fares.)
- Time-Speed Curves (see Speed-Time Curves).
- Toledo: Fostoria & Findlay Railway.....*414
—& Indiana Interurban Road.....623
—Union Interurban Passenger Station.....*704
—& Western Railway, Freight Handling on. *862
—System of*978
- Tower Wagon, Automobile, in Columbus (McCardell)*998
- Track Construction: Discussion on [Brackenridge and Reed] 766
—in Hartford*806
—and Maintenance on Detroit United Railway*454
—in Nottingham*834
—Specifications for 841
—of Suburban and Interurban Railways.... 402
—Zurich Street Railway.....*726
—(See also Rails.)
- Track Maintenance in American Street Railways [Hamilton] 180
- Track Scrapers (Root) *58
- Trackless Trolley: Cars in Germany.....*866
—in New England191, *351
—Omnibus in Nice*170
- Tractive Effort: and Draw-Bar Pull..... 821
—Method of Increasing948, *953
- Traffic: Advertising for248, 777, 831
—on Chicago Elevated248, 627
—Circulars on Aurora, Elgin & Chicago Railway*840
—of Cleveland & Electric Railway Company*985
—on Erie Traction Company.....*1009
—on Fonda, Johnstown & Gloversville Railway*1009
—Congestion in Large Cities.....1004
—Crossings, Stopping at First.....c1021
—Excursion Business 244
—Figures in New York City 1010
—Frequency of Service 90
—General Passenger Department of Detroit United Railway*471
—Overcrowding Cars 949
—Problems [Bellamy] 176
—Result of Steam and Electric Competition on Suburban Lines 381
—Rush-Hour Schedules in Detroit.....*443
—Standing in Open Cars 269
—Suburban Conditions of London, England [Dawson]*527
—Tripper Problem 702
- Train Despatching (see Despatching).
- Train Resistance: [Armstrong] 21
—Aspinall's Experiments 317
—Berlin-Zossen High-Speed Railway Tests. *145
—[Blood] 23
—(See also Acceleration.)
- Train-Staff System for Electric Railways [Emerson] 235
- Transfers: in Europe [Lavalard]..... 206
—Form of 749
—Method of Computing Loss from [Smith] 917
—Problem of 117
—Registration of [Meneely] 619
—Comments on 638
— [Wentworth] 916
— [Wilkes] 790
—System at Birmingham 429
—of Chicago Union Traction Company, 803, 832, *839
— at Providence 81
—Time Limit on, Valid.....975, 985
- Trap, Steam, Morehead Return.....*769
- Trenton: Consolidation of Steam and Street Railroads 102
—Interstate Railways Company, Incorporation 950
—New Jersey & Pennsylvania Traction Company, Franchise in.....259, 793
—Three-Cent Fare in 793
- Trenton & New Brunswick Railway Equipment and Operation341, 821
- Trolley Base: Ball Bearing (General Supply) *772
—(Johnson)*770
—Modified, in Detroit.*491
- Trolley Pole: Adjustable, on Grand Rapids Street Railway*761
—Attachment 131
Trolley Wheel: used in Detroit*453
—on Grand Rapids Street Railway.....*762
—New Type (New Haven).....*939
—(R. A. Co.) 940
—Pure Copper (P. C. & B.).....*772
—Wear of 90
- Trolley Wire: Grounding Device for [Heaton and Smith]*61
—Possibilities of Higher Voltage in..... 222
—Scrapers (Root)*58
Trucks: Heavy Electric, for Italy (Brill)....*771
—for Interurban Service [Uebelacker].....*517
—with Magnetic Adhesive Device, at Seattle, Wash. (Honey)*953
—used on Manhattan Railway*913
—Report of Committee on Standards..... 814
- Trunk-Line Service, Multiple Unit, Voltage Speed Control for [Leonard]*868
—(See also Heavy Electric Railroadng.)
- Tube Railways in London [McMahon]*228
- Tunnel: Mersey River 283

- Third Rail in, Sparkless Operation of... 316
 Turbines, Steam: Commercial Aspect of [Sniffen] *643
 — Comments on 640
 —De Laval Type [Anderson]..... *988
 —in Massachusetts 882
 —for New York Subway Plant..... 81
 —Test of 300-hp 405
 —Tests in Sheffield [Fedden] 182
 Turbines, Water (Escher-Wyss) *55
- U**
- Underground Railways (see Boston, London, New York, Paris, and Tube Railways).
 United Power & Transportation Company, Sale of 1026
- V**
- Vestibules, Manhattan Railway, New York.. *909
- W**
- Waiting Stations: West Springfield *1010
 —Worcester & Southbridge Street Railway *893
 Washington, Club Rooms for Employees... 274
 Washington, Baltimore & Annapolis Railway. 299
 —Single-Phase Equipment for *350
 —[Lamme] *578
 — Comments on 602
 Westinghouse: Detroit Managers, Annual Meeting of 882
 —Exhibit at Detroit Convention..... *694
 West Springfield Waiting Station..... *1010
 Wheatly, W. W., Biographical Sketch and Portrait 630
 Wheel Grinder (Miller) *187
 Wheels: for Interurban Railway in Michigan. —in Europe, Practice in *903
 —Manhattan Railway, New York..... *913
 —Manufacture of Solid Steel..... 850
 —for Suburban and Interurban Service, Report of Committee on Standards.... 814
 Wire, Machine for Scraping and Recovering Field *490
 Worcester & Southbridge Street Railway, System of *887
- Y**
- Youngstown-Sharon Railway & Light Company, System of..... *139
- Z**
- Zossen Tests, Conditions on (see Berlin-Zossen, and Train Resistance).
 Zurich Street Railway, System of *725
- AUTHORS' INDEX FOR VOLUME XX.
- Adams, Alton D.—Restrictions on Electrical Supply by Street Railways..... 236
 —Transmission Lines for Electric Railways. 791
 Adams, James R.—Selling Current from Railway Service 792
 Anderson, Konrad.—Steam Turbine with Special Reference to the De Laval Type of tion for Street Railways 252
 Armstrong, A. H.—Train Resistance..... 21
 Arnold, B. J. and W. B. Potter—Comparative Acceleration Tests with Steam Locomotive and Electric Motor Cars..... *47
 Banghart, Charles S.—The Most Economical Management of the Repair Shop..... 400
 Barnes, C. R.—Accidents on Electric Railroads 371, 392
 Bell, Louis—Methods for Heavy Electric Traction 9
 Blood, John Balch—Train Resistance Formula 23
 Brockway, W. B.—The Accounting Department of Interurban Railways *508
 Calderwood, J. F.—Profession of Public Accountant 29
 —the Standard Form of Report Adopted at Detroit 915
 Conway, J. F.—Equipment and Organization for Properly Handling Snow Storms... 878
 Crafts, Wm. A.—Brakes, Jacks and Fenders in Massachusetts 429
 Daly, Hon. Joseph F.—Accidents on Street Railways, from the Legal Point of View 397
 Danforth, R. E.—Economic Methods for Removing Snow and Ice..... 394
 —Power-House Accounting 370
 Davis, H. P.—Modern Switchboard Practice. 751
 Dawson, Philip—Suburban Traffic Conditions of London, England *526
 Dibbs, William A.—The Handling of Accident Claims 365
 Emerson, H. D.—Block-Signal Systems for Electric Railways 235
 —the Distribution of Accounts..... 315
 —the Standard Form of Report..... 915
 Fairchild, C. B.—Discipline 367
 Farmer, Thomas—Motive Power and Rolling Stock of the Detroit United Railway... *444
 French, H. Arnold—Appropriate Car Decoration 766
 Goldsborough, W. E.—The Electric Urban and Interurban Railway at the St. Louis Exposition 731
 Gorman, R. P.—Brick for Car-House Floors. 258
 Gotshall, W. C.—The Graphical Representation of Street Railway Statistics..... 741
 Ham, W. F.—Report of Committee on a Standard Form of Report for Electric Railways 712
 Hanchett, George T.—Collectors for Heavy Traction *13
 —Removal of Sleet from a Third Rail.... 745
 —The Series Alternating-Motor Problem... *983
 Harrington, W. E.—Discipline of Street Railway Employees 333
 Hering, Carl.—What is Meant by Grade Stated in Per Cent? 99
 Keiley, J. D.—Some Brake Tests and Deductions Therefrom *1015
 Keilholtz, P. O.—Electrically Operated Coal Hoist Having Variable Speed Control. 874
 Kerr, Walter C.—The Designing of Steam-Power Plants 497
 Ketcham, C. H.—Establishing and Enforcing Discipline 870
 Knowlton, Howard S.—An Obstacle to Rapid Transit 98
 Lambert, M. B.—The Training of Motormen. 258
 Lamme, B. G.—Washington, Baltimore & Annapolis Single-Phase Railway..... *578
 Lang, Albion E.—Handling Freight and Express on Interurban Electric Railways. *500
 Leonard, Ward—Multiple Unit, Voltage Speed Control for Trunk-Line Service.. *868
 McMahon, P. V.—Tube Railways in London. *228
 Magee, Louis J.—How the Berlin Press was Educated in Street Railway Operation.. 746
 Mailloux, C. O.—Plotting Speed-Time Curves, 32, *51, *121, *199, *231, *254, *275
 Manning, James.—Creation of Reserve Funds. 25
 Meneely, C. D.—Registration of Transfers... 619
 Mitten, Thomas E.—Car Despatching on Interurban Lines. 399
 —Efficient Discipline 934
 Palmer, G. W., Jr.—Signals for Urban and Interurban Railways 650
 Parke, R. A.—Railroad Car Braking..... 1011
 Parker, George—Electric Express and Package Delivery 620
 Pattee, E. S.—Coupons 314
 Poetz, M.—Street-Car Brakes 250
 Porter, Hon. Robert P.—Failure of Municipal Ownership in England 153, 310
 Potter, W. B.—Interurban Electric Railway Car Equipment 514
 Reckitt, Charles Coleby—Corporate Dividends 27
 Reed, W. Boardman—Removal of Snow and Ice in the Borough of Manhattan..... 364
 Renshaw, Clarence—Tests of Interurban Cars of Union Traction Company, of Indiana *522
 Rider, J. H.—English Municipal Railways... 110
 Rogers, G. Tracy—Street Railway Situation in New York 362
 Root, Oren, Jr.—Street Railway Mutual Benefit Associations 618
 Sampson, Wm. C.—Collection and Registration of Fares 706
 Satterlee, W. A.—Discipline of Employees by the Merit System 653
 Schmidt, H. F.—The Wheel Capacity for Engine-Driven Alternators 956
 Shurtz, J. R.—The Stationary Store Room... 712
 Slichter, Walter L.—Fly-wheel Capacity for Engine Driven Alternators *957
 Slingerland, G. W.—Organization and Discipline 871
 Sniffen, Edward H.—The Steam Turbine, its Commercial Aspect *643
 Stanley, Albert H.—The Merit System on the Detroit United Railway 440
 Starring, Mason B.—The Adjustment of Damage Claims 651
 Tully, A. C.—Storekeeping and Lost Property 395
 Uebelacker, C. F.—Trucks for Interurban Service *517
 Valentine, Walter S.—A Graphical Method of Making Time-Speed Curves *303
 Wentworth, Arthur—Signals on Interurban Lines 793
 —Some Disputed Points Concerning Transfers 916
 Wheatly, W. W.—Efficient Discipline..... 869
 —The Proposed Standard Code of Rules... 811
 Wilkes, George—Why Transfers should be Registered 790
 Wood, W. O.—The Operation of Electric Interurban Railways *483
 Ziffer, E. A.—Systems of Mechanical Traction for Street Railways 252