

INDEX

- Switzerland and Alpine tunnels, 102, 340; early railway development in, 348; electric traction in, 297-308
- TACUS River Bridge, 286
- TACOMA, rivalry with Seattle, 687
- Tampico-Mexico City Railway, "Fairlie" locomotives of, 170-1; gradients of, 171
- Tancred, Arrol and Company and Forth Bridge, 267
- Tasmania, "Garratt" locomotives in, 29, 32-3
- Tay Bridge disaster, 266
- Telescope double-lift bridge, 54-9
- Terminus, modern railway, 587-95
- Thompson, Mr. Matthew Williamson and Forth Bridge, 266
— River, bridge over, 199
"Thorough Cut," the, 126
"3,000" class Mallet locomotive, 59
"Tinto" express, 541
- Tong King Sing, and locomotives in China, 481
- Tonopah and Tidewater Railway, 141-5
- Topographer's Gulch, railway work in, 685
- Toua Tunnel, 306
- Tower Bridge, 108, 409, 410, 411
- Track-layer, mechanical, 73-81
- Track-throwing, 713
- Train ferries, 113, 170, 112-3
- Trans-Andean Railways, 135, 137
- Trans-Siberian Railway and Lake Balkal, 173, 174; and musket-dinobles, 135, 711
- Transvaal, railways in, 610, 720
- Travi Tunnel, 410
- "Trevithick" locomotive, 351
- Trevithick, Mr., and L. & N.W.R. locomotives, 388
- Tsavo Bridge, 151-2
- Tube Railways and Greathead shield, 412
- Tules under Hudson River, 309, 594
- Tubular bridge across Menai Strait (L. & N.W.R.), 352
— — — across St. Lawrence River, 352
- Tull-Clermont and Montluçon-Gannat Railway, 29
- Tunnelling in Feather River Canyon, 738; on C.P.R., 376; the Alps, 434; the Lotschberg, 101-12; the Salkirs, 391
- Tunnels:**
- Albula, 306
 - Ambergate, 513
 - Beechwouth, 735
 - Bergunstein, 304
 - Blea Moor, 518
 - Box, 161
 - Bozeman, 256
 - Cascade, 495, 570
 - Charnadura, 307
 - Col de Frejus, 435
 - "Dogger," 361
 - Dove Holes, 515
 - Esperanza, 138
 - Festiniog, 388
 - Freggio, 110
 - Glatsheras, 306
 - Glenfield, 512
 - God, 306
 - Grum, 307
 - Hosac, 574
- Tunnels (continued) —**
- Ilio Flung, 241
 - Ivlsby, 379-382, 386
 - Lotschberg, 101-12
 - Mont Cenis, 101, 104, 136-9, 561
 - Mount Royal, 604
 - Mullan, 256
 - Moffat-Shrubs, 140
 - Pipestone Pass, 680
 - Prato, 140
 - Rugmuz, 306
 - Ruse Hill, 548
 - St. Clair, 117, 112-4, 572
 - St. Gotthard, 102-4, 109, 138, 208, 310-1, 315, 561
 - St. Paul's Pass, 681
 - Schwenden, 206
 - Severn, 165-9
 - Simpson, 103-4, 311-2
 - Spring Garden, 738
 - Stampede, 258
 - Summit, 302
 - Toua, 306
 - Travi, 140
 - Tuxpan, 469
 - Wattinger, 308
 - Zondra, 306
- Tuxpan Bridge and tunnel, 469
- Tixpan-Golima line, Mexico, 484
- "Twentieth Century Limited," 581
- Tyler, Sir Henry, and Grand Trunk Railway, 354
- UGANDA Railway, 118-51, 523-8
- Union Pacific Railway and snow-ploughs, 610; inception of, 251, 514, 551; junction with Tonopah and Tidewater Railway, 150; story of, 512-22, 553-60
- Unloaders, mechanical, 471-8, 712
- Usambara Aerial Railway, 298, 505
- Utah Construction Company, 9
— railway race to, 521
- "V-swing," Meiggs', 135
- Valdez Glacier, 221
- Van Horne, Sir William, and C.P.R., 90, 198
- Vancouver, railways at, 603
- Vanderbilt tenter, 171
- Vauclain 4-cylinder locomotive, 281
- "Velocity grade," the, 214
- Veri Cruz and Isthmus Railway, 164, 470
- Vertical lift bridge, 408
- Victoria Falls Bridge, 289, 721
— Bridge, Montreal, 352, 354, 386
— Station, London, 587
- Vilas, Mr. Royal C., and electric headlights, 191
- Villard, Mr. Henry, and electric traction, 238; and Northern Pacific Railway, 256-7; failure of, 262
- Virginian Railway, Mallet locomotives of, 627; story of, 533-40
- Volga, train ferries on the, 175
- Volk, Mr. Magnus, and electric railway at Brighton, 238
- Von de Röhl, Messrs., and Wetterhorn Railway, 39
- WADDELL and Harrington telescopic double-lift bridge, 55-9
- Wagon, ballast, increased size of, 45, 127, 219
- Walker, Mr. T. A., and Severn Tunnel, 166
- Walkham Viaduct, 161
- Wall, Mr. B. P., and Transvaal Railways, 723
- Waller, Mr. J. Edward, and Western Oases Railway, 695
- Wadschaert valve-gear, 216, 219, 248, 455
- Water-power for electric generators, 239, 340
- "Water special" to Key West, 433
- Water double on Jungfrau Railway, 362
- "Water trough" on British and American railways, 415-6
- Waterloo Station, 588
- Wattinger Tunnel, 138
- Webb, Mr., and L. & N.W.R. locomotives, 388
- "Wedge" snow-ploughs, 639
- Weller, Mr. L., and Siamese railways, 292
- Wellington and Masterton Railway, New Zealand, 439
— avalanche disaster, 392
- West Coast route to Scotland, 419
— Virginia, coalfields of, 533
- Western Oases Railway, 691-700
— Pacific Railway, 7-9, 258, 663; story of, 731
- Westinghouse air-brakes on "Fairlie" locomotives, 248; on Langen Suspension Railway, 329
- Electric Company, 441, 571, 576
- Wetterhorn Aerial Railway, 35-8, 330
- Whale, Mr., and L. & N.W.R. locomotives, 388
- White Pass Railway, 221
"White Trains" of L. & N.W.R., 506
- Whitney, Mr. Asa, and Northern Pacific Railroad, 251
- Whitton, Mr. John, and Blue Mountain Zig-zag, 16
- Whyte classification of locomotives, 46, 312
- Wiesen Viaduct, 299
- Wigham-Richardson and Company and train ferries, 115
- Willmette Bridge, 675
- Willow Creek Bridge, 736
- Wilson, Sir C. Rivers, and G.T.R., 750
- Wind gauges and Forth Bridge, 272
- Windsor (Canada), train ferries at, 117
- Winnipeg, C.P.R. and, 91
- Wolgan Valley Railroad, 581
- Woolley, Mr. Leonidas, and electric headlights, 187
- Wootton Bassett bank, 160
- Wrecking cranes, 515; for bridge building, 714-7
- YELLOWHEAD Pass, and Canadian Northern Railway, 602; and C.P.R., 193; and Grand Trunk Pacific, 750
- Yorkshire Engine Company, Limited, 248
- Yunnan Railway, 176-85
- ZIG-ZAG, In Blue Mountains, 17; through Cascade Mountains, 191
- Zuondra Tunnel, 306