

INDEX

- Aaron Manby*, 85, 98
Abell, Sir W. S., 350, 356
Aberdeen, 244, 245
Acasta, H.M.S., 285
Acheron, H.M.S., 307
Achilles, 180
Achilles, H.M.S., 118, 213
Acorn, H.M.S., 285
Acté, French destroyer, 292
 Acts of Parliaments relating to ships,
 97, 345
Adamson, D., 242
Adamson, J., 354
Adderstone, 317
Admiral Graf Spee, German battleship,
 337
 Admiralty, 27, 29, 49, 50, 51, 60, 66,
 68, 71, 72, 73, 77, 83, 89, 90, 92,
 135, 174, 209, 226, 262, 263, 277,
 278, 295, 307, 325, 332, 340–344
 Admiralty Boiler Committee (1874),
 192–193, 197, 200, 223
 Admiralty boiler ferrule, 250
 Admiralty Committee (1858), 146
 Admiralty Committee on Designs
 (1871), 175, 185
 Admiralty Committee on Designs
 (1892), 251, 347
 Admiralty Committee on Designs
 (1904), 282
 Admiralty Committee on Naval
 Boilers (1900), 251
 Admiralty Experimental Oil Fuel
 Station, 286
Aeolipyle, Hero's, 272, 293
African, H.M.S., 28, 149
Agamemnon, 180
Agamemnon, H.M.S., 75
Aglaia, 99
 Air compressor, 227
 Air heating, 202, 305
 Air reservoirs, 227
 Airless injection, 327, 332
Airy, Sir G. B., 99
Ajax, 180
Ajax, H.M.S., 20, 75, 78
Aki, Japanese battleship, 291
 "Akroyd" cycle, 327
 Aktiebolaget Diesels Motoren, 330
Alarm, H.M.S., 262
Alaska, 182
Alban, H.M.S., 20
Albatross, H.M.S., 267, 268
Albemarle, 234
Albert, H.M.S., 115
Albion, H.M.S., 63
Alburkah, 99
Alcantara, 313
Alecto, H.M.S., 73
 Allan Steamship Co., 174, 280
 Allen, A. E., 184
 Allen, W. H., 231
Aller, 246
 American Line Steamship Corpora-
 tion, 322
 American Philosophical Society, 7
Amerika, 335
Amethyst, H.M.S., 279, 282
 Ammunition magazine, cooling of,
 234
Amphion, H.M.S., 68, 75
 Anderson, Capt. Sir J., 213
Andes, 315
 Anglo-American Brush Co., 230
Animoso, Italian destroyer, 292
Annapolis, U.S.S., 310
Anthracite, 200
Aorangi, 336
 Appleyard, R., 273
 Appold, J. G., 208
Aquitania, 281, 282, 318
Arab, H.M.S., 267, 268
Archer, H.M.S., 151
Archimedes, 67, 70, 71, 72, 75, 76,
 102
 Arc light, 229
Arethusa, H.M.S., 162, 181, 182
Argus, 199
Arizona, 182
 Armour, iron, introduction of, 111
 Armstrong, Lieut. G. E., 254
 Armstrong, Lord, 214, 218, 273
 Armstrong, R., 153
 Armstrong, Sir W. G., Whitworth and
 Co., 218, 278
Arrogant, H.M.S., 75
Arundel Castle, 315
 Ash, W., 23, 26
Asturias, 313
Atalanta, 31
 Atherton, C., 137
Athlone Castle, 335

- Atkinson, F. B., 294
 Atlantic cable, 108–110
 Atlantic liners, steam turbines in, 280, 281, 319
 triple-expansion engines in, 241
 Atlantic records, 168
 Atlantic ships, compound engines in, 181
 Atmos boiler, 312, 313
 Auckland, Lord, 91, 92, 93
Audace, Italian destroyer, 292
 Augustin-Normand, P., xiv, 5, 198
Augustus, 338
 Australia, steam communication with, 106, 180
Australian, 107
 Austrian Government, 226
 Aydon, H., 287
 Ayrton, W. E., 360
- Babcock, G. H., 309
 Babcock and Wilcox, Ltd., xv, 309
 Babcock and Wilcox boilers, 51, 262, 284, 307, 309–311
 Babcock-Johnson boiler, 315
Bacchante, H.M.S., 185
Badger, H.M.S., 295
 Baker, W. H., 206
 Baldock, Lieut. T., 54
Banshee, H.M.S., 61
 Barclay, Curle and Co., 331
 Barclay, R., 353
 Barnaby, S. W., 169, 257, 258
 Barnard, R., 278
 Barnes, J., 18, 59, 73
Baroda, 180
 Barrow, Sir J., 52, 83, 84
Bat, H.M.S., accident to, 269
Batavia, 181
Batoum, 259
 Battle-cruisers, turbine-driven, 284
 Battleships, turbine-driven, 284
 Bauer-Wach exhaust-steam turbine system, 316
Beagle, H.M.S., 285
 Beam engine, compounding of, 177
 Beardmore, W., and Co., Ltd., 325
 Beaufoy, Col. H., 351
Beaver, H.M.S., 295
Bee, H.M.S., 72
 Beeman, Eng. Rear-Adm. Sir R., xiv
 Bell, H., 3, 14, 16, 82
 Bell Brothers, 232
 Belleville boiler, 199, 200, 251, 252, 253, 262
 Belliss, G. E., 231, 236
- Belluzzo steam turbine, 293
 Bennet and Henderson, 35
 Benson boiler, 312
 Bentham, Sir S., 340
Berengaria, 280, 282, 318
Berenice, 31
Bermuda, 338
 Bernard, W. D., 113
 Berthon, Rev. E. L., 66, 68
 Bertin and Robertson, 198
Biche, 199
 Bickerton, Adm. Sir R., 65
 Biles, Sir J., 295
Birkenhead, H.M.S., 118–120
Birmingham, U.S.S., 290
 Birmingham Reference Library, 51, 127
Black Eagle, H.M.S., 60, 136
Black Prince, H.M.S., 111, 124
 Blackie and Son, Ltd., xv
 Blading turbine, 320, 323
Blake, H.M.S., 62, 277
 Blasco de Garay, 3
 Blaxland, G., 66, 67, 76, 77
 Blechynden, A., 241
 Blechynden boiler, 261, 266
Blenheim, H.M.S. (1845), 75
Blenheim, H.M.S. (1890), 123, 277
 Blockade-runners, 165
 Blohm and Voss, 312
Bloodhound, H.M.S., 116
Boadicea, H.M.S., 185
 Board of Trade, 125, 210, 344–347
 Bochet, A., 329
Bogota, 179
 Boiler, Atmos, 312, 313
 Babcock and Wilcox, 251, 262, 284, 307, 309–311
 Babcock-Johnson, 315
 Belleville, 199, 200, 251, 252, 253, 262
 Benson, 312
 Blechynden, 261, 266
 blowing down of, 130
 box, 189
 Clark and Motley, 198
 Cochran, 189
 copper, 126
 cylindrical, 134, 189, 194, 305
 Dürr, 251
 Du Temple, 261, 266
 flue, 126
 Guyot, 261
 Herreshoff, 259, 260, 312
 Johnson, 313
 La Mont, 312, 313

INDEX

363

- Boiler, Lamb and Summers, 133
 locomotive, 189, 259, 260, 264
 Loeffler, 312, 313
 low-pressure, 125
 Martin, 189
 Niclausse, 251, 262
 Normand, 198, 261, 266, 267, 268
 oval, 186, 195
 Penhoët, 323
 Perkins, 200
 rectangular, 189, 191
 Reed, 261, 266
 regulations for, 129
 return-tube, 189
 Rowan, 199, 243
 Scotch, 194
 Sulzer mono-tube, 312, 313
 testing of, 128
 Thornycroft, 198, 251, 261, 264,
 265, 266, 268
 through-tube, 189
 tubular, 133, 189
 Velox, 312, 313
 Wagner-Bauer, 312, 313
 White, 266
 White-Forster, 261
 Yarrow, 198, 251, 261, 264, 266,
 306, 307, 308, 322
 Boilers, of H.M.S. *Comet*, 126
 of H.M.S. *Iris*, 186
 of *Queen Mary*, 307, 308
 water-tube, 189, 197–201, 306–315;
 statistics, 253
Bosphorus, 106
Boswell, 317
 Boulton, M., 293
 Boulton, Watt and Co., 18, 28, 49,
 51, 60, 121
 Bourne, J., 42, 44, 56, 64, 78, 142,
 147, 205, 208, 287
 Box boiler, 189
 Boyd, W., 354
 Boyle, A., 347
 Braithwaite, J., 85
 Bramwell, Sir F., 176, 271
 Branca, G., 272
Brandon, 179
 Brayton, G. B., 326
 Bréguet steam turbine, 288, 292
Bremen, 319, 320
 Brennan, L., 225
 Brine pumps, 23, 130
Brisk, H.M.S., 291
Bristol, H.M.S., 292
Britannia, 38–46, 152
Britannic (1874), 62, 181, 182
Britannic (1914), 281
Britannic (1930), 335
 British and American Steam Naviga-
 tion Co., 37
 British and North American Royal
 Mail Steam Packet Co., 45
 British Association, 179, 296, 297,
 321, 325
 British Corporation of Shipping, 348
British Queen, 38–47, 138, 154
 British submarines, engines in, 332
Briton, H.M.S., 184
 Brotherhood, P., 226–227
 Brown, Boveri and Co., 317, 360
 Brown, C., 360
 Brown, C. E. L., 360
 Brown, Eng. Vice-Adm. Sir H. A., 343
 Brown, T., 87
 Brown, J. and Co., Ltd., 291–292,
 338, 357
 Brown, S., 324, 325
 Brown-Curtis steam turbine, 291
 Brunel, I. K., 38, 70, 73, 101, 107, 108
 Brunel, Sir M. I., 51, 341
 Buchanan, R., 50
 Buchi, A., 334
Bullfinch, H.M.S., accident to, 269
 Burgh, N. P., 235
 Burmeister and Wain, 330, 334
 Burns, Sir G., 45
 Butler, R. J., 173, 202, 350
 Butterley Iron Works, 18, 28, 49, 197
 Caird, J. T., 18, 105
 Caird's inverted-cylinder engine, 147
California, 322
Callao, 179
Calypso, French submarine, 332
 Cammell, Laird and Co., Ltd., xv
Campania, 247, 249
 Canadian Pacific Co., 307, 313
 Cape, steam communication with, 106
Captain, H.M.S., 175
Caradoc, H.M.S., 61
 Carlton, T., 347
Carnania, 280, 282
Carnatic, 180
Carron, H.M.S., 28
 Central Marine Engine Works, 246,
 315
 Centrifugal pumps, 207
 Chantiers et Ateliers Augustin-
 Normand, 256
 Chapender, J., 20, 22
 Chappell, Capt. E., 71, 132
Charlotte Dundas, 12

- Charmian*, 294
Chatham, H.M.S., 63
 Chatham Dockyard, 51
Chester, U.S.S., 290
 Childers, H. C. E., 163
 China, naval operations in, 114
Chow Yung, Chinese cruiser, 202
 Christensen and Meyer, 315
Circe, French submarine, 332
City of Berlin, 229
City of Brussels, 168
 City of Dublin Steam Packet Co., 26, 43
City of Glasgow, 104
City of Manchester, 104
City of New York, 246
City of Paris (1866), 168
City of Paris (1888), 246, 249
City of Richmond, 229
City of Rio de Janeiro, 181
City of Rome, 181, 182, 239, 360
 Civil Engineers, French Society of, 242, 289
 Institution of, 62, 72, 80, 87, 135, 136, 143, 153, 169, 171, 176, 197, 218, 230, 242, 258, 287, 351, 352
 Civil War in America, 164
Civitta, 66
 Clarence, Duke of, 20, 351
 Clark and Motley boiler, 198
 Clarke, Chapman and Co., 273
 Classification societies, 347–348, 351
 Clerk, Sir D., 325
Clermont, 14, 34
 Closed-stokehold forced draught system, 201, 202
 Coal, North Country, 138
 Coalbrookdale Bridge, 97
 Coal-burning ships, 304
 Coal consumption, 134, 137, 153, 174, 179, 184, 245, 246, 267, 306
 Coaling ship, 139
 Coals, for steam navy, 139
 Coastal destroyers, turbine-driven, 284, 285
Cobra, H.M.S., 278
 Cochran boiler, 189
 Cochrane, Adm. Sir T., 88
 Coleman, J., 232
 Coles, Capt. C. P., 215
 Colomb, Vice-Adm. P. H., 89, 220
Colombo, 105
Columbia, H.M.S., 28
Comet, 14, 82
Comet, H.M.S., 27, 52, 54, 126, 149, 229
 Committee, Merchant Cruisers, 280
 Committee, Admiralty, *see* Admiralty Committee
 Compagnie Générale Transatlantique, 168
 Compass experiments in iron ships, 99
 Compound engines, 166, 174–186
 Compounding, 177
 Compressed air for gun mountings, 215
 Compression ignition, 327
 Condenser, surface, 41, 153, 320
 Condensers, jet, 150
Confiance, H.M.S., 28
Congo, 50
Conqueror, H.M.S., 202
Constance, H.M.S., 181, 182
Conte de Savoia, 307, 319, 320
Conte Rosso, 313
 Cook, S. S., 318
 Copper for boilers, 128
 Corner, J. T., Eng. Rear-Adm., 173, 350
 Corrosion in boilers, 191
 Corrugated flue, Fox's, 197
 Cort, H., 95
County of York, 246
 Cowan, Major P. J., xii, xiii
 Cowper, E. A., 184
Creole, 290
Crocodile, French gunboat, 224
Crocodile, H.M. Indian troopship, 183
 Cunard Co., 18, 31, 39, 45, 46, 104, 168, 181, 190, 246, 280
 Cunard, Sir S., 45
Curaçoa, 34
 Curling and Young, 30, 38
 Curtis, C. G., 272
 Curtis steam turbine, 272, 290
 Cushing, Lieut. W. B., 234
Cyclops, H.M.S. 53, 58
Cyclops, U.S.S., 299
 Cylinder jackets, fresh water from, 149
 Cylindrical boiler, 134, 189, 194, 305
 Daimler, G., 326
 Dallery, C., 65
Daring, H.M.S., 263–266
Dauntless, H.M.S., 75
 Davy, Sir H., 229
 Deadman, H. E., 230
Decoy, H.M.S., 263
Dee, H.M.S., 35, 54, 136, 137
 Denny, Dr P., 147
 Denny, W., and Brothers, 107, 279
 Density of boiler water, 20, 129

INDEX

365

- Destructor*, Spanish destroyer, 263
 Deutsches Museum, xv, 328
Deutschland, 247, 249, 359
Deutschland, German battleship, 337
Dévastation, French ironclad, 124
Devastation, H.M.S. (1841), 56
Devastation, H.M.S. (1869), 163, 277, 341
 Devonshire Association, 356
 d'Eyncourt, Sir E. T., 296
Diadem, H.M.S., 249
Diana, 26
 Dickinson, H. W., xiv, 14
 Dickinson, J., and Co., 315
 Diesel, R., 326–329
 Diesel oil engine, 328–332, 334, 336
 Dinnen, J., Inspector of Machinery, 28, 128, 130, 137, 223
Diomedé, H.M.S., 319
 Direct-acting engine, 145
 Distilled water for boilers, 223
 Distiller, fresh-water, 220–225
 Distilling, history of, 220–225
 Ditchburn, J., 98, 100, 122
 Ditchburn and Mare, 118–122
 Dixon, Eng. Vice-Adm. Sir R. B., 343
 Dockyards, H.M., 29
 iron shipbuilding in, 118
Dogali, Italian cruiser, 247
 Dollar Steamship Line, 322
 Donaldson, J., 257.
Doncaster, 65
 Donkey pumps, 207
 Dorey, Dr S. F., 350
 Double piston-rod engine, 147
 Double-reduction gearing, 296, 318
 Douglas, Gen. Sir H., 94, 116
Dover, H.M.S., 115
 Doxford, W., and Sons, Ltd., 287, 338
 Doxford oil engine, 334, 338
Drake, H.M.S., 248, 249
Dreadnought, H.M.S. (1877), 195, 204, 216, 218, 229
Dreadnought, H.M.S. (1906), 283
Dresden, 329
Driver, H.M.S., 126, 152
Dryad, H.M.S., 262
 Dudgeon, J. and W., 165–166, 169
Duke of Wellington, H.M.S., 139
Duke of York, 28
 Dundonald, Lord, 133
 Dürr boiler, 251
 Durston, Eng. Vice-Adm. Sir J., 173, 242, 342
 Du Temple, Commandant F., 261
 Du Temple boiler, 261, 266
Dwarf, H.M.S., 61, 72, 76, 77
 Dyckhoff, F., 329
 Dyer, H., 360
 Dynamos, early types of, 230
 Dyson, Rear-Adm. C. W., 290
 Eads, Capt., 214
 East Asiatic Co., 330
 East India Co., 112
 Eastern Steam Navigation Co., 107
Echo, H.M.S., 134
Eclipse, 52
 Economiser, 131
Eden, H.M.S., 279
Edgar, H.M.S. (1890), 248, 249
Edgar, H.M.S. (1865), sails out of Portsmouth, 162
Edinburgh, 11
Edinburgh, H.M.S., 20
 Edison, T. A., 229
 Elder, D., 178
 Elder, J., 178, 179, 243, 359
 Elder, J., and Co., 178, 184, 244
 Electric generators, 228–232
 Electric lighting, 229
 Electric Power Storage Co., 299
 Electric transmission gear, 288, 298–301, 321, 323, 339
 Electrical Engineers, Institution of, 232
 Ellenborough, Lord, 91
 Ellice, Capt. A., 341
Emeraude, French submarine, 331, 332
 Emery, C., 185
 Emmet, W. L., 300
Empress of Britain, 307, 313, 319, 320
 Engine, Brotherhood three-cylinder, 226, 231
 compound, 166, 174–186
 direct-acting, 145
 double piston-rod, 147
 “Gorgon”, 57, 145
 Lentz, 315
 oscillating, 60, 145
 paddle-wheel, types of, 145
 quadruple-expansion, 179, 240, 246, 247, 315
 screw, types of, 145
 semi-uniflow, 315
 “Siamese”, 55, 73, 74, 145
 side-lever, 18, 143
 single piston-rod, 147
 steeple, 145
 triple-expansion, 177, 238–249
 triple-expansion, with reheater, 315
 trunk, Penn’s, 147
 vertical inverted-cylinder, 147

- Engine construction, 148
 Engine details, 150
Engineer, The, 12, 263, 357
 Engineer-in-Chief of Navy, 341, 343
 Engineer Surveyor-in-Chief, Board of Trade, 347
Engineering, 251, 253, 270, 281, 292, 301
 Engineering branch of Royal Navy, 342, 343
 Engineers, training of, 171
 Engineers and Shipbuilders in Scotland, Institution of, 200, 286, 353
 Engines, for electric generators, 231
 internal combustion, 324–339
 oil, 324–339
 oil, design of, 333
 oil, Diesel, 328–332, 334, 336
 oil, Doxford, 334, 338
 oil, Etève, 326
 oil, geared, 337
 oil, Hornsby-Akroyd, 328
Enterprize, voyage to India, 22–26, 31, 113
Erebus, H.M.S., 124
 Ericsson, J., 66, 67, 68, 73, 85, 143, 164, 214
 Escape valves, 149
Essex, 338
 Etève engine, 326
Etruria, 181, 246
Europa, 319
Euxine, 105
 Evaporator, 223, 224
 Hall's, 153
 Ewart, P., 128, 143, 341
 Ewing, Sir J. A., 360
 Exhaust-steam turbines, use of, 316, 317
 Expansive working, 152
 Experimental tanks, work of, 355
 Explosion, boiler, in H.M.S. *Thunderer*, 193
Express, H.M.S., 255, 267, 268

 Fairbairn, Sir W., 97, 98, 99, 100, 105, 109, 120
 Fairfield Shipbuilding and Engineering Co., Ltd., xv, 178, 336
Fairy, H.M.S., 73
Falcon, 26
 Fanshawe, Adm. Sir E., 88
 Faraday, M., 192
Far East, 166
 Far East, steam communication with, 107, 180
 Farey, J., 136

Faulconer, 243
Faulx, French destroyer, 290
 Fawcett, W., 18
 Fawcett, Preston and Co., 40, 152
 Feed heating, 23, 257, 305
 Feed pumps, 205–207
 Ferguson, 243
 Ferrand, C., 257
 Ferrule, boiler-tube, 250
 Field, J., 18, 54, 134–136
 Field papers, 23, 39, 41
 Fighting under sail, end of, 162
Firebrand, H.M.S., 28, 60, 133, 139
 Fire pumps, 209
 Firing indicators, 157
 Fisher, Lord, 262, 282
 Fitch, J., 3, 5–10, 33, 198
 Flannery, Sir F., 176, 197
 Fletcher and Fearnall, 122
 Floating frame, 319
Flora, 166
 Flue boiler, 126
Foam, H.M.S., accident to, 269
Forban, French torpedo-boat, 266
 Forced draught, 201–203
 Forced lubrication, 231
 Fore River Shipbuilding Co., 290
 Forrester, G., 18, 113
 Forrester, G., and Co., 210
 Föttinger, Dr H., 288, 301
Föttinger Transformator, 301
Fourche, French destroyer, 290
 Fowler, Sir J., 171
 Fox, S., 197
 France, experiments in, 3, 4
 compound engines in, 181
 forced draught in, 202
Francis B. Ogden, 67, 68
Francis Smith, 67, 70
Frankfort, 147
 Franklin, B., 6, 355
 French Navy, 262, 266
 water-tube boilers in, 253
 French submarines, engines in, 331
 French torpedo boats, 262, 266, 288, 292
 Fresh water from cylinder jackets, 149
Frigorifique, 232
 Froude, W., 356
 Froude Laboratory, 356
 Frozen meat, transport of, 233
 Fryer, Eng.-Commander G. H., 287
 Fulton, R., 3, 13, 16, 34
Furet, 243
Furious, H.M.S., 53
 Furness Withy Line, 322

INDEX

367

- Galatea*, H.M.S., 84
 Galloway, R., 346
 Garrard, Dr C. C., 321
Garryowen, 99
 Gas engine, 325, 326
 Gas producer, 325, 326
 Gas vacuum engine, 324
 Gauges, engine, 156
 pressure, 131
 Gear, electric transmission, 321–323
 hydraulic transmission, 288
 Gearing, double-reduction, 296, 318
 early use of, 70, 73, 145 167
 mechanical reduction, 288, 294–
 297, 337
 single-reduction, 294–296, 318, 319
 General Electric Co., U.S.A., 288, 290
 General Screw Steam Shipping Co.,
 106
 General Steam Navigation Co., 18,
 26, 28, 100
George IV, 28
Georgic, 335
 German Navy, steam turbines in, 279,
 292
Germanic, 62
 Germany, shipbuilding in, 359
 Gibbs, Bright and Co., 103
 Giffard, H., 232
 Gifford, Capt. W., 221
Gitana, 202, 258
Gloire, French line of battleship, 124,
 214
Gneisenau, 313
Golconda, 180
 Gomme, A. A., xiv
 Goodall, S. V., 301
 Goodrich, S., 20, 22, 341
 Goodwin, Eng. Vice-Adm. Sir G. G.,
 343
 Gordon, Lieut. W., 87, 125, 135,
 156
Gorgon, H.M.S., 53, 57
 “Gorgon” engine, 57, 145
 Gorrie, Dr J., 232
Goshawk, H.M.S., (1874) 185
Goshawk, H.M.S. (1910), 285
 Gotaverken exhaust-steam turbine
 system, 317
Graeme Stewart, 299
 Gramme, Z., 229, 230
 Grant, Sir T. T., 221
 Grantham, J., 98, 99, 103, 353
Grasshopper, H.M.S., 262
 Gravell, J., 257
 Gray, J. M., 176, 210, 352
Great Britain, 70, 71, 77, 101–103, 104,
 107, 109, 145
Great Eastern, 105–110, 210–213, 239
 Great Exhibition (1851), 56, 108, 208
Great Northern, 72
Great Western, 33, 38–47, 56, 68, 101
 Great Western Steamship Co., 38, 103
Gretzia, 287
Gripsholm, 334
 Guns, size of, 163
 Gun-turret, development of, 214, 219
 Guyot boiler, 261
 Gwynne, J. and H., 208
 Hall, Capt. B., 87
 Hall, J. and E., 234
 Hall, S., 41, 153, 154, 223
 Hall, Adm. Sir W. H., 88, 113, 114
 Halsted, Capt. E. P., 87
 Hamburg-American Line, 301, 312,
 337
 Hampton, Lord, 353
 Hamshaw, T., 55
Hanseat, 316
Hantonia, 295
Harbinger, 106
 Harland and Wolff, Ltd., xv, 335
 Haslam, Sir A. S., 232
Hastings, H.M.S., 52
Havelland, 337
Havock, H.M.S., 263–266
 Hawkins, Sir R., 220
 Hawthorn, R. and W., Leslie and Co.,
 202, 247, 277, 350
 Heath, Commander L. S., 87
Hecla, H.M.S., 129
Hellespont, 106
Hermes, H.M.S., 28
Hero, 310
 Hero’s aeolipyle, 272, 293
 Herreshoff, James B., 257
 Herreshoff, John B., 257
 Herreshoff boiler, 259, 260, 312
Hightfyer, H.M.S., 75
Himalaya, H.M.S., 105, 106, 107, 108,
 123
Hivondelle, 199
 Hodgson and Co., 103
 Hofmann, Prof. A. W., 192
Hogue, H.M.S., 20, 75
Holland, 181
 Holland-America Line, 310
 Holt, A., 176, 180
 Holzapfel, A. C., 325
Holzapfel I, 325
Hood, H.M.S., 296, 298

- Hornblower, J., 177
 Hornby, Adm. Sir G. T. P., 162
Hornet, H.M.S., 263, 266
 Hornsby-Akroyd oil engine, 328, 332
 Hornsby and Sons, Ltd., 327
 Horseley Iron Works, 98
 Horse-power, nominal and indicated, 54
 Horton, T. R., 199
 Hoseason, Commander J. C., 152
 Howden, J., 202
 Howden system of forced draught, 202
Hugh Lindsay, 31
 Hulls, J., 4
 Humphrys, E., 62, 147, 179, 180
 Humphrys, Tennant and Co., 180, 183, 193
 Humphrys, Tennant and Dykes, 62, 147
 Hunter, S. Jnr, 305
Hydra, Dutch gun boat, 218
 Hydraulic gun machinery, 216
 steering gear, 213
 transmission gear, 288
 Hydrometer, 129
- Iberia*, 38
Ibuki, Japanese cruiser, 291
Ile de France, 318, 319, 320
Imperator, 280, 282
Inca, 179
Inchmona, 246
Inconstant, H.M.S., 167, 168
 Incrustation in boilers, 25, 129
Independencia, see H.M.S. *Neptune*
 India, steam communication with, 22, 107
 Indicator, 157
 Induced draught, 201
Inflexible, H.M.S. (1846), 152
Inflexible, H.M.S. (1878), 195, 204–205, 208, 216, 229, 230, 236
 Inglefield, Adm. Sir E. A., 213
 Injection water, regulation of, 151
 Inman, W., 104, 229
 Inman Line, 168, 246
 Internal combustion engines, 324–339
 ships with, statistics, 304, 331, 334
 International Exhibition (1851), 56, 108, 208
 International Exhibition (1862), 210
 Inventions Exhibition (1885), 274
 Inverclyde, Lord, 280
Invincible, H.M.S., 63
Iris, H.M.S., 62, 184, 185–188, 197
Irishman, 200
- Iron for boilers, 190
Ironsides, 97
 Irvine, Dr, 221
 Isherwood, Rear-Adm. B. F., 167
 Italian Navy, steam turbines in, 292, 293
Italy, 181
 Italy, marine engineering in, 360
- Jackal*, H.M.S., 116
 Jamieson, A., 230
 Jane's *Fighting Ships*, 290, 326
Janus, H.M.S., 133
 Japan, shipbuilding in, 358–360
 Japanese Navy, 259, 291
 Jet condensers, 150, 151
 Jet propulsion, experiments with, 169
 John, W., 359
John Randolph, 99
 Johnson, Capt., 99
 Johnson boiler, 313
 Johnston, Lieut. J. H., 23, 24
Joseph Medill, 299
 Jouffroy d'Abbans, Marquis de, 3, 4
Jumna, 208
Jumna, H.M. Indian troopship, 350
Jupiter, U.S.S., 299, 300
Jutlandia, 331
- Kaiser Wilhelm der Grosse*, 249, 359
Kaiser Wilhelm II, 239, 247, 249
 Keller, C., 338
 Kelvingrove Museum, 65
 Kennal, Sir J., 310
 Kempelen, 293
Kent, 50
 Kermode, J. J., 287
Kertosono, 313
 Key, Adm. Sir A. C., 59, 88, 89, 220
 King, J. W., 214
King Alfred, H.M.S., 248
King Edward, 279
King George V, 306
 Kingsbury thrust bearing, 298
 King's College, London, 208
 Kingston, J., 130
 Kingston valve, 130
 Kirk, A. C., 199, 243, 244, 245
 Kitson, Sir J., 273
Köln, German cruiser, 292
Königin Luise, 301
Kotaka, Japanese torpedo-boat, 259
Kronprinzessin Cecilie, 247
- Laconia*, 147
Lady Lansdowne, 99

INDEX

369

- Lahn*, 246
 Laird, J., 61, 98, 99, 112, 115, 119
 Laird, J., Sons and Co., 255, 267, 268
 Laird, M., 38, 99
 Lamb, A., 133, 352
 La Mont boiler, 312, 313
 Landore Siemens Steel Co., 197
 Lang, O., 56
 Langen, E., 325
 Langley, U.S.S., 299
 Laslett, A. E., 347
Latoshka, Russian torpedo boat, 288
Laurentic, 281
 Laval, C. G. P. de, 272
Lave, French ironclad, 124
 Lawrie, L. G., 353
 Leakage in boilers, 128
 Lenoir, J. J. E., 325
 Lentz engine, 315
Leonidas, H.M.S., 296, 298
Leopard, H.M.S., 53
Leven, 18
Leviathan, 280
Lexington, U.S.S., 321
Lightning, H.M.S. (1823), 19–22, 54, 84
Lightning, H.M.S. (1877), 201, 202, 258
 Lignum vitae bearing, 79
Lima, 179
 Lime for boilers, 192
 Lind, Dr J., 221
 Linde, C. von, 232, 328
 Lindholmen exhaust-steam turbine system, 317
 Lindsay, W. S., 39
Lion, H.M.S., 284
Little Juliana, 13
Liverpool, 38–48
Lizard, H.M.S., 116
 Ljungström steam turbine, 300
Llewellyn, H.M.S., 61
Llewellyn, 154
 Lloyd, T., 71, 341, 342
 Lloyd's *Register Book*, 321, 331, 334
 Lloyd's Register of Shipping, 42, 97, 245, 302, 321, 347–351
 Locomotive boiler, 189, 259, 260, 264
 Locomotive "Novelty", 85
 Loeffler boiler, 312, 313
 London and South-Western Railway, 295
 London, Brighton and South Coast Railway, 295
 Louis XVI, 8
 Lowe, J., 66, 67, 76, 77
 Low-pressure boiler, 125
Lübeck, German cruiser, 279
 Lubricating oils, 192
 Lubrication, theory of, 297
 Lubrication of engines, 157
Lucifer, H.M.S., 296
Luna, 133
 Lupuis, Capt., 225
Lusitania, 280
 Macalpine, J. H., 319
 McAuslan, W., 347
 McClelland, W., 232
 Macgregor, J., 3
 Macgregor, J., 98
McGregor Laird, 194
 McIntyre, M., Inspector of Machinery, xiv
 McKechnie, Sir J., 241
 McNaught, W., 177
 "McNaughting", 177
Magicienne, H.M.S., 53
 Maginnis, A. J., 39, 242
Magon, French destroyer, 290
 Mail services, steam, 27
 Main, T. J., 87
 Main and Brown, 134, 157
Majestic, 249
Majestic, H.M.S., 277
Malacca, H.M.S., 79, 121
Malaya, H.M.S., 284
Mallard, H.M.S., 185
 Mallet, A., 242
Maloja, 316
 Mare, C. J., 98, 106, 122
Marietta, U.S.S., 310
 Marine engineering, and Admiralty, 340–344
 and Board of Trade, 344, 347
 and Lloyd's Register of Shipping, 347–351
 and research, 354
 Marine engineering, shipping and shipbuilding, interrelation of, 357
 Marine Engineers, Institute of, 312, 321, 354
 Marine machinery, Board of Trade rules, 345
 Marine Machinery, Lloyd's Register rules, 348–350
 Marine Steam Turbine Co., 273, 275, 277
Marquis of Wellesley, 99
 Marriner, W. W., 286
 Marshall, F. C., 241, 246, 247
 Martin, Adm. Sir B., 60
 Martin boiler, 189
Mary Ann, 243

S M

24

- Maschinenfabrik Augsburg-Nürnberg, xv, 328, 331, 336
 Mastic, composition of, 129
 Maudslay, H., 19, 23, 54, 341
 Maudslay, J., 54
 Maudslay's double piston-rod engine, 147
 Maudslay, Sons and Field, 18, 23, 39, 40, 42, 49, 54–56, 62, 73, 75, 87, 99, 106, 124, 126, 130, 142, 182, 184, 186–188, 235, 244, 360
Mauretania, 280, 282
 Maw, Dr W. H., 238
Mayrant, U.S.S., 292
 Mechanical Engineers, American Society of, xv, 300
 Institution of, 62, 79, 133, 176, 210, 230, 242, 297, 329, 339, 352
 Mechanical reduction gearing, 288, 294–297, 337
 Mechanical stokers, 304
Mechanics' Magazine, 154, 325
Medea, H.M.S., 54
 Mediterranean, steam mail service to, 28
Medusa, 114
Megaera, H.M.S. (1837), 154
Megaera, H.M.S. (1846), 118–121
 McInns-Pfenniger steam turbine, 293
 Melrose, J., Chief Inspector of Machinery, 286
 Melville, Lord, 27, 52, 83
 Melville, Rear-Adm. G. W., 319
 Menai Straits Tubular Bridge, 109, 120
 Mends, Adm. Sir W. R., 79, 88
 Mercantile Marine Department, Board of Trade, 345
 Merchant Cruisers Committee, 280
Mercury, H.M.S., 62, 184, 185, 197
Mermaid, 61, 72
Mermaid, H.M.S., 221
Merrimac, 164
Messenger, H.M.S., 28
Meteor, H.M.S., 28
 Metropolitan-Vickers Electrical Co., Ltd., 317
 Michell, A. G. M., 297
 Michell thrust bearing, 297
 Miller, J., 18, 49, 59, 62, 142
 Miller, P., 3, 11
 Miller and Barnes, 59
 Miller and Ravenhill, 59
 Miller, Ravenhill and Salkeld, 256
 Millwall Iron and Shipbuilding Works, 123
 Milne, J., 360
 Milton, Dr J. T., 173, 242, 349
Milwaukee, 337
Mimer, 300
Minotaur, H.M.S., 209, 229, 230
 Minto, Lord, 84
Minx, H.M.S., 76
Miranda, 258
 Mitman, C. W., xv
Mjölner, 300
 Model ship and propeller experiments, 355–357
 Mollison, J., 201
Monarch of Bermuda, 310, 322
 Moncrieff, Col. A., 215
Monitor, 164, 214
Monte Olivia, 337
Monte Sarmiento, 337
Montezuma, 243
Mooltan, 180
Moorhen, H.M.S., 185
 Morcom, A., 173, 232, 350
 Motors, electric propulsion, 299, 300, 322
Motor Ship, The, 337
 Motorships, statistics, 304, 331, 334
 Mudd, T., 246
 Murray, A., 235
 Murray, M., 344
 Murray, R., 125, 130, 136, 150, 346
 Napier, Adm. Sir C., 59, 84, 90, 92, 98, 116, 139
 Napier, D., 14, 18, 98, 99, 100, 142, 145, 356
 Napier, J., xv
 Napier, J. and W., 133
 Napier, R., 18, 31, 44, 75, 87, 104, 116, 121, 178, 352
 Napier, R. and Sons, 15, 244
Napoleon, 73
 National Maritime Museum, 19
 National Physical Laboratory, 356
 National Portrait Gallery, xv
 National Steamship Co., 181
 Nature, 355
Nautilus, 169
 Naval Architects, Institution of, 125, 166, 173, 182, 185, 202, 213, 242, 289, 296, 350, 352, 353
 Naval Architects and Marine Engineers, American Society of, 354
 Naval Architecture, Schools of, 172, 173
 Society for Improvement of, 351
 Naval engineers, training of, 172

INDEX

371

- Naval Regulations, 89, 129, 150, 193
 Naval Reviews (1897, 1914), 277
 Naval warfare, effect of steam on, 82, 94
 Navy Board, 50, 340, 341
Navy List, 27, 52, 75, 277
 Neilson, J., 99
Nemesis, 112–115
Neptune, H.M.S., 218, 229
Neptune, U.S.S., 299
Nero, 310
 Newbiggin, H. T., 297
 Newcomen, T., 1, 4, 95, 247
 Newcomen Society, 52, 328
New Mexico, U.S.S., 300
 New Navy List, 117
New York City, 202
 New Zealand Shipping Co., 281, 338
 Niclausse boiler, 251, 262
Nieuw Amsterdam, 308
 Nobel Brothers, 329
 Norddeutscher Lloyd, 246, 322
 Normand, C. B., 242, 243
 Normand, J. A., 223, 240, 243, 255–257, 261, 266
 Normand boiler, 198, 261, 266, 267, 268
Normandie, 319, 320, 323
 Normandy distiller, 223
Normannia, 295
Norseman, 330
North Dakota, U.S.S., 291
 North-East Coast, engineers of, 246
 Institution of Engineers and Ship-builders, 354
 North-Eastern Marine Engineering Co., Ltd., xv, 156, 305, 315
Northman, 147
Northumberland, H.M.S., 123
 Norwich steam packet explosion, 344
Notes and Queries, 52
Novelty, 72
 Oatmeal in boilers, 129
Oberon, H.M.S., 118, 121
 Ocean Steam Ship Co., 180
Oceanic (1870), 62
Oceanic (1899), 249
Octavia, H.M.S., 181, 182
 Odessa, bombardment of, 57, 162
Odin, H.M.S., 53
 Ogston, G. H., 192
 Oil-burning ships, 304
 Oil engines, 324–339
 ships with, statistics, 304, 331, 334
 Oil fuel, advantages of, 286
 Oil fuel burning, history of, 287
Olympic, 281, 316
 Ommanney, Capt. E., 88
Opale, French submarine, 331
 Oram, Eng. Vice-Adm. Sir H., 242, 343
Orcades, 310
 Orient Line, 310
Orion, 310
 Orlando, F., 292
Orlando, H.M.S., 248, 249
 Oscillating engine, 60, 145
Otaki, 281
 Otto, N. A., 325
 Otway, Commander R., 29, 52, 125, 133, 137, 149, 157
 Oval boiler, 195
 Pacific Steam Navigation Co., 168, 179
 Pain, A. C., 231
 Paixhans, Gen., 112
Pallas, H.M.S., 183
Paris (1913), 295, 298
Paris (1921), 318
 Parker, Adm. Sir W., 56, 91, 92, 93, 114
 Parker, W., 245, 346, 349
 Parry, Adm. Sir W. E., 341
 Parsons, Hon. Sir C. A., 272–274, 294, 306, 316, 318, 324
 Parsons, C. A., and Co., 273
 Parsons Marine Steam Turbine Co., 277, 294
 Parsons steam turbine, 271–284, 288, 290
Parthia, 181
 Particular Service Squadron, 162
 Pasteur, L., 3
 Patent fuel, 139
 Patridge, D., 137
 Patterson, 40, 41, 101
Pelican, H.M.S., 200
Penelope, H.M.S., 133, 154
 Penhoët boiler, 323
 Peninsular and Oriental Steam Navigation Co., 18, 30, 38, 43, 105, 133, 168, 179, 191, 307, 310, 322, 352
 Penn, J., 18, 60, 62, 79, 205, 352, 353
 Penn, J., and Sons, 49, 60, 75, 103, 105, 142, 168, 182, 235
Pennsylvania, 322
 Pepys, S., 221
Pera, 105

372

Pereire, 168
 Périer, J. C., 3, 4
 Perkins, A. M., 136, 200
 Perkins, J., 133, 200, 232, 242
 Perkins, L., 200, 223
 Perkins, U.S.S., 292
 Perkins boiler, 200
 Perry, J., 360
 Persia, 104, 107, 108, 109
 Petit-Pierre, 329
 Petrie, W., 229
 Petroleum, discovery of, 326
 Phillimore, Vice-Adm. A., 91
 Phlegethon, 114
 Piston for oil engine, 335
 Piston speed, 255, 267, 336
 Pistons and piston packing, 149
 Pluto, 114
 Pollock, D., 110, 238
 Polyphemus, H.M.S. (1840), 93
 Polyphemus H.M.S. (1879), 202
 Poonah, 180
 Porpoise, 299
 Portsmouth Dockyard, 20, 121, 194,
 231, 235, 340, 341
 Portsmouth Engineering Society, 301
 Post Office, 27
 Post Office Steam Packets, 341
 Potsdam, 312, 322
 Pottinger, 105
 Powerful, H.M.S., 248, 249, 277
 Preble, Rear-Adm. G. H., 16, 39
 Preece, Eng. Vice-Adm. G., 343
 President, 38, 40, 45
 President Coolidge, 322
 President Hoover, 322
 Priestman Brothers, 326
 Prince Baudouin, 336
 Princess Royal (1), 72
 Princess Royal (2), 100
 Princeton, 68, 73
 Propontis (1850), 106
 Propontis (1874), 199, 243
 Proserpine, 114
 Public Record Office, 35
 Pulverised fuel, 304
 Pumps in ships, 205–209
 “Quadropod” drop-valve engine, 315
 Quadruple-expansion engines, 179,
 240, 246, 247, 315
 Quail, H.M.S., 267
 Queen Alexandra, 279
 Queen Mary, 307, 319, 320, 357
 Queen of Bermuda, 310, 322
 Queen Victoria, 102, 259, 276

INDEX

Rainbow, 100
 Ramsey, D., 4
 Randolph, C., 178
 Randolph, Elder and Co., 178, 182
 Rankine, W. J. M., 173, 199, 256, 353
 Rateau, A. C. E., 272, 288, 290
 Rateau steam turbine, 272, 288–290
 Rattler, H.M.S. (1845), 73, 75, 76, 77,
 93, 145
 Rattler, H.M.S. (1886), 325
 Rattlesnake, H.M.S., 247, 262
 Ravenhill and Salkeld, 59
 Ravensworth, Lord, 353
 Recruit, H.M.S., 106
 Rectangular boiler, 189, 191
 Rederiaktiebolaget Svea, 300
 Reed, Sir E. J., 163, 204
 Reed boiler, 261, 266
 Refrigerating machinery, 232
 Regent, 52
 Reheater, steam, 184, 316
 Rendel, G. W., 218
 Rennie, G., 61, 62
 Rennie, Sir J., 42, 60, 61, 62, 135, 136
 Rennie, J. and G., 18, 49, 61, 70, 72,
 119, 120, 124, 142, 184, 235
 Repulse, H.M.S., 284
 Research and marine engineering, 355
 Resin as fuel, 138
 Ressel, J., 66
 Retribution, H.M.S., 53, 56, 91, 153
 Return-tube boiler, 189
 Reverie, 309
 Reverse valve, 131
 Revolution, 290
 Rex, 319
 Reynolds, O., 297
 Rhadamanthus, H.M.S., 35, 54, 137
 Ricardo, H. C., 339
 Richardson, Sir A., 276
 Rifleman, H.M.S., 77
 Ripon, 105
 Robert F. Stockton, 67, 68
 Roberts, Lieut. R., 45
 Robertson, Eng.-Commander F. L.,
 111, 214
 Robinson, R. A., 80
 Robinson, Commander R. S., 86, 88,
 125, 149, 158
 Robinson, Commander S. M., 300
 Rob Roy, 356
 Rolt, P., 123
 Romagna, 330
 Ross, Rear-Adm. Sir J., 85, 86, 90,
 112, 137, 156
 Rotterdam Lloyd Line, 313

INDEX

373

- Rover*, H.M.S., 185
Rowan, F. J., 199
Rowan, J. M., 199
Rowan boiler, 199, 243
Royal Albert, H.M.S., 79, 207
Royal George, 100
Royal Naval College, Greenwich, 72, 173, 350
 Portsmouth, 72, 87, 89
Royal School of Naval Architecture and Marine Engineering, 173, 184, 342, 350
Royal Society, 20, 62, 297
Royal Society of Arts, 3, 130, 318
Royal Sovereign, 100
Royal Sovereign, H.M.S. (1856), 215
Royal Sovereign, H.M.S. (1890), 277
Royal Tar, 100
Royal William (1831), 35
Royal William (1837), 39-43
Ruahine, 166
Ruck-Keene, H. A., 350
Rumseian Society, 6
Rumsey, J., 3, 5, 6, 169, 198
Rupert-Jones, Commander J. A., 52
Russell, J. S., 77, 107, 136, 165, 353
Russell, S. and Co., 109
Russia, 168, 190
Russian Navy, 259, 266
 water-tube boilers in, 253
Russian War, 82, 101, 105, 111, 120, 162, 222
Ruthven, J. and M. W., 169
Ryder, Capt. A. P., 87, 140
- Saale*, 246
Safety valves, 131
 deadweight, 193
 regulations for, 345
Sailing clippers, speed of, 161
Sailing ships and steamships, statistics, 17
St Columba, H.M.S., 61
St George's Steam Packet Co., 41
St Leonard, 37
St Louis, 337
Sainte Barbe, 199
Salem, U.S.S., 290
Salmon, Adm. Sir N., 277
 Salt water for boilers, 129
Samson, P., 347
Sandfly, H.M.S., 262
Sandison, M., 278
Sans Pareil, H.M.S., 75, 234, 247
Sarah Sands, 103, 109
Saratoga, U.S.S., 321
- Sarjeant*, Mr Justice, 298
Satellite, H.M.S., 202
Sautter-Harlé and Co., xv, 329, 330, 331
Sauvage, P. L. F., 66
Savannah, 34
Scavenging, 334
Scharnhorst, 313, 322
Schichau, F., 257, 359
Schiffbautechnische Gesellschaft, 354
School of Naval Architecture, 341, 351
Science Museum, xv, 12, 56, 57, 69, 102, 110, 142, 180, 194, 274, 294
Science Museum Library, 22, 39, 341
Scotch boiler, 194
Scotia, 19, 168
Scott, J., 18, 180, 199
Scott, Sir A., 351
Scott and Sinclair, 142
Scottish Society of Arts, 66
Screw propellers, advantages of, 75
 model experiments with, 357
 trials with, 76
Seagull, H.M.S., 262
Seamanship Manual, 80
Searchlights, 228
Seaton, E. A., 173, 185, 244
Seaward, J., 18, 57, 75, 130, 135, 142
Seaward and Capel, 49, 57
Selandia, 330, 334
Selborne, Lord, 282
Sells, C., 186, 360
Sells, C. de G., xiv, 290, 326
Selwyn, Adm. J. H., 287
Semi-uniflow engine, 315
Sennett, R., Inspector of Machinery, 173, 176, 185, 195, 342
Seppings, Sir R., 51, 122
Serapis, H.M. Indian troopship, 183
Servia, 182, 208
Sexta, 243
Shand, Mason and Co., 209
Shannon, H.M.S., 248, 249
Sharpshooter, H.M.S., 251, 262
Sheldrake, H.M.S. (1874), 185
Sheldrake, H.M.S. (1889), 262, 310
Shipbuilding, shipping and marine engineering, interrelation of, 357
Shipping legislation, 97, 344
Ship Propeller Co., 70
Ships with internal combustion engines, statistics, 304
Ships with reciprocating steam engines, statistics, 304
Ships with steam turbines, statistics, 304
Shorter, E., 65

- Shot, effect on iron plates, 117
 Siamese engine, 55, 73, 74, 145
 Sickells, E. S., 209
 Side-lever engine, 18, 143
Sidon, H.M.S., 53, 59, 140
 Siemens, A., 230
 Siemens, F., 195
 Siemens, Werner, 229
 Siemens, Sir W., 195, 271, 325
 Siemens Sample-Steel Works, 197
Simoom, H.M.S., 118–122
 Single-reduction gearing, 294–296,
 318, 319
Sirius, 33, 38–45, 138, 154
Sirius, first iron ship classified, 97
Sirius, H.M.S., 184
 Skelton, Eng. Vice-Adm. Sir R. W.,
 242, 343
 Smith, Sir F. P., 66, 67, 69, 73, 77, 79
 Smith, J., 37
 Smoke from funnels, 139
 Sochet, M., 223
 Société Rateau, 289
 Soda for boilers, 192
Sokol, 266
Somerset, 296, 318
Soudan, H.M.S., 115
 Southern Pacific Railway, 290
 Spanish Navy, 259, 263
Spartan, H.M.S., 184
 Spears, J. R., 34
Speedy, H.M.S., 251, 262
 Spencer, J. F., 154
Spider, H.M.S., 262
 Spiel, J., 326
 Staite, W. E., 229
 Stanhope, Earl, 50
Statendam, 310
 Statistics of steam ships and sailing
 ships, 17
 of iron ships and wooden ships, 111
 of types of machinery, 303, 304,
 334
 of water-tube boilers, 253
 of world's shipbuilding output, 357
 Steam, high-pressure, 133–135, 306–
 313
 low-pressure and high-pressure, 133
 superheated, 136, 305
 Steam boats, naval, 234–237
 Steam gun machinery, 216
Steam Manual, 193
 Steam pressure, rise in, 189, 240, 303
 Steam reciprocating engines, im-
 provements in, 315
 ships with, statistics, 304
 Steam saver, Hall's, 153
 Steamships, growth in size of, 239
 statistics, 304
 Steam steering, 209–214
 Steam turbine, Belluzzo, 293
 Bréguet, 288, 292
 Brown-Curtis, 291
 Curtis, 272, 290
 De Laval, 272
 Ljungström, 300
 Melms-Pfenniger, 293
 Parsons, 271–284, 288, 290
 Rateau, 272, 288–290
 Tosi, 293
 Zoelly, 272, 288, 292
 Steam turbines, advantages of, 283
 geared, 288, 294–297
 ships with, statistics, 304
 Steam turbines and engines, com-
 bination of, 279, 281
 Steam turbines and transmission gear,
 288–302
 Steam turbines *versus* reciprocating
 engines, 290
 Steel for boilers, 186, 190, 195
 Steeple engine, 145
 Steering engine, 209, 213
 Stephens, A., and Sons, Ltd., 315, 322
 Stephenson, G., 352
 Stephenson, R., 69, 109, 352
 Stephenson, R., and Co., 180
 Stephenson link motion, 61, 151
 Stern tube bearing, 78, 79
Sterrett, U.S.S., 292
 Stevens, E. A., 13, 201
 Stevens, Col. J., 3, 13, 66
 Stevens, R. L., 13, 201
Stirling Castle, 335
 Stokers, 137
 Stopford, Adm., 58
 Stores, engine-room, 158
Strathaird, 307, 322
Strathallan, 310
Stratheden, 310
Strathleven, 232
Strathmore, 310
Strathnaver, 307, 322
Stromboli, H.M.S., 138, 215
 Stuart, H. A., 326–328
 Submarines, Diesel engines in, 331, 332
 Suez Canal, 105, 108, 180
 Sullivan, Adm. Sir B. J., 222
Sultan, 105
Sultan, H.M.S., 209
 Sulzer Brothers, 328, 334, 336, 360
 Sulzer mono-tube boiler, 312, 313

INDEX

375

- Sulzer-Steiner, H., 360
 Supercharging, 334
 Superheating, 136, 305, 308
 Surface condenser, 41, 153
Sussex, 338
 Swan, Sir J., 229
Swinger, H.M.S., 185
 Switzerland, mechanical engineering
 in, 360
Sylvia, H.M.S., 236
 Symington, W., 3, 11–13
 Symonds, Capt. Sir W., 57, 68, 93
- Tartar*, H.M.S., 285
 Taylor, A., 243, 246
Teazer, H.M.S., 77
 Technical education, 172
 Telegraph, engine-room, 156
 Tellier, C., 232
Temeraire, H.M.S., 229
Tenedos, H.M.S., 184
Terrible, H.M.S. (1845), 53, 56, 57, 91,
 153
Terrible, H.M.S. (1896), 277
Terror, H.M.S., 124
Thames, H.M.S., 333
 Thames, River, marine engineering
 on, 49–63
 Thames Iron Works and Shipbuilding
 Co., 118, 123
Thetis, 199
Thetis, H.M.S., 184, 186
 Thompson, G. and Co., 244
 Thomson, Prof. J., 208
 Thomson, J. and G., 147, 184, 246,
 263, 268
 Thornycroft, Sir J. I., 201, 240, 255–268
 Thornycroft, John I., and Co., Ltd., xv
 Thornycroft boiler, 198, 251, 261,
 264, 265, 266, 268
 Through-tube boiler, 189
 Thrupp, Capt. A. T., 121
 Thrust bearing, Michell, 297
 Thrust bearings, 77, 78
Thunder, 166
Thunderbolt, H.M.S., 207
Thunderer, H.M.S. (1876), 193, 204,
 216, 218, 277
Thunderer, H.M.S. (1911), 63
Times, The, 68, 204, 205, 263
Tirailleur, French destroyer, 293
Titanic, 281
 Tod, D., 18, 98
 Tod and Macgregor, 100, 104, 105, 142
Toiler, 330
 Tokyo Imperial University, 360
- Toman, Eng. R. W., 269
Tonnante, French ironclad, 124
 Tookey, W. A., xiv
 Torpedo, Whitehead, 225–227, 254
 Torpedo boat, Wood, No. 5, 236
 Torpedo boat destroyers, 254, 263–270
 turbine-driven, 277, 278, 279, 284–
 285
 Torpedo boats, 254–263
 Torpedo gunboats, 254–262
 Tosi, F. and Co., 293
 Tosi steam turbine, 293
 Tostevin, Eng.-Commander H. B., 296
 Tower, B., 297
 Towing experiments, 52, 92
 Traill, W. T., 346
 Transatlantic Steam Ship Co., 38, 43
 Transmission gear and steam tur-
 bines, 288–302, 318
Trave, 246
 Tredgold, T., 1
Trenton, U.S.S., 231
 Tribal torpedo-boat destroyers, tur-
 bine-driven, 284, 285
 Triple-expansion engines, 179, 238–
 249, with reheater, 315
 Troopships, H.M. Indian, 183, 350
 Trunk engine, Penn's, 147
 Tubular boiler, 189
 Tuckey, Capt. J. H., 50
 Turbine Steamers, Ltd., 279
Turbinia, 275, 276
 Turbo-generator, Parsons, 274
 Turbo-generators, 299, 300, 322, 323
 Turret of *Monitor*, 165
 Twin-screws, 166
- Uckermark*, 312
Umbria, 181, 182, 246
 Union Castle Liners, 335
 United States, early steam boats in, 3,
 5, 16
 shipbuilding in, 358, 359
 United States Coast Survey, 174, 185
 United States National Museum, 5, 7,
 8, 34, 66
 United States Navy, 286, 291, 310,
 319, 321
 steam turbines in, 290, 292
 water-tube boilers in, 253
- Vail, A., 7
Vale of Leven, 100
Valorous, H.M.S., 53
Valparaiso, 179
Vandal, 330

- Vaterland*, 280, 282
Velox, H.M.S., 279
 Velox boiler, 312, 313
Venerable, H.M.S., 63
Vespasian, 294
Vesuvius, H.M.S., 88, 140
Viceroy of India, 322
 Vickers, Ltd., 332
 Vickers, Sons and Maxim, Ltd., 283
 Vickers-Armstrongs, Ltd., xv
Victoria, 336
Victoria, H.M.S. (1859), 163
Victoria, H.M.S. (1887), 247
Victorian, 280
Victory, 85
 Vienna Exhibition, 227
Viper, H.M.S., 277, 278
Virginia, 322
Virginian, 280
Volcano, H.M.S., 128
Volta, 299
Voltigeur, 200
Voltigeur, French destroyer, 289
Vulcan, H.M.S., 118–124
Vulcanus, 330

 Wagner-Bauer boiler, 312, 313
 Walker, J., 143
 Walker, R. J., 296
 Wallsend Slipway and Engineering Co., 287, 354
Wampanoag, U.S.S., 167, 168
Wanderer, 200
Warrington, U.S.S., 292
Warrior, H.M.S., 111, 123, 124, 214
 Warships, growth in size of, 239
 Water supply in ships, 220–225
 Water-tube boilers, 189, 197–201, 306–315
 statistics, 253
Waterwitch, H.M.S., 169
 Watt, J., 1, 11, 64, 95, 143, 177, 178, 247, 293
 Watt, J., and Co., 75
 Weights of machinery, 54, 58, 127, 248, 255, 268, 284, 285
 Werkspoor Co., 330
 Werkspoor engines, 334
 West, C. D., 360
 West Ham Municipal College, 123
Westminster, 37
 Wethered, Hon. J., 136
 Wheatstone, Sir C., 229
 White, J. S., 236, 257, 259, 260, 353
 White, Sir W., 111, 120, 242, 251, 257, 263, 352

 White, W. A., 317
 White boiler, 266
 White-Forster boiler, 261
 White “new economy” engine, 317
 Whitehead, R., 225
 Whitehead torpedo, 225–227, 254
 Whitworth, Sir J., 214
Widgeon, H.M.S., 71
Wilberforce, H.M.S., 115
 Wilcox, S., 309
 Wilde, H., 228, 229
 Wilkinson, J., 97
 Williams, C. W., 39, 99
 Williams, Capt. W. J., 86, 87, 125, 132, 134, 138, 140
 Williams, W. T., 347
 Williamson, Capt. James, 15
 Williamson, Capt. John, 279
 Wilson, R., 66
 Wilson, T., and Sons, 309
 Wimshurst, H., 70
Windermere, 154
Windsor Castle, 315
 Wingate, T., 98
 Wishart, Eng. Rear-Adm. W. L., 344
 Woodcroft, B., 66, 67, 76, 77
 Woodruff, Capt., 46, 152
 Woolf, A., 177
 Woolwich Dockyard, 62, 89, 130, 143, 341
 Worcester College, Oxford, 221
 World, circumnavigation by steam, 152
 World Exhibition (1900), 289
 World’s shipbuilding output, statistics, 358
 Worthington, H. R., 206
 Worthington direct-acting pump, 206
 Wright, J., 342
Wulsty Castle, 301

Yang Wei, Chinese cruiser, 202
Yarmouth, H.M.S., 292
 Yarrow, Sir A. F., 240, 255–266, 356
 Yarrow and Co., Ltd., xv, 288
 Yarrow boiler, 198, 251, 261, 264, 266, 306, 307, 308, 322
Yngaren, 338
 Yorkshire Engine Co., 200
 Young, W. J., 328
Ysabel Secunda, 36

 Ziese, C. H., 257, 359
 Zimmermann, R., 359
 Zinc slabs in boilers, 192
 Zoelly, Dr H., 272
 Zoelly steam turbine, 272, 288, 292