

INDEX TO VOL. XXIII.

A.

ADMIRALTY, the, and the Controller and Chief Constructor, 451
Aeronautical science, a glance at, 442; society, 454
Air and steam combined as a motive power, 384; cylinder for combined air and steam engine, 425
Allhusen's chemical works, 7
Algeria, engineering works in, 452
Amendment of the patent laws, 23
America, great fire in, 300; the torpedo in, 56
American aeronauts, a flying ship to be built, 101; bridges, 308; iron trade, 445; & foreign shipping, 209
Anemograph, M. Rabache's, 39
Apparatus for breaking and softening flax, Bremme's, 223; for desiccating grain, Milburn's, 170; for drawing off clear water from wells or tanks, 296; for hulling and polishing coffee and other berries, 135; for measuring liquids, improvements in, 278, 279; for measuring the velocity of ships, on, 23; for preserving and cooling food, Kershaw's, 314; for preventing boiler explosions, 97; for preventing the accumulation of deposits on ships' hulls, 118; for regulating the drag of the thread upon cap-frame spindles, 66; for removing soot and deposit from boiler tubes, 44; for storing and carrying eggs with safety, 226; for tinning pins, 26
Armour plates, the strength of, 5; composed of one or more thicknesses, on the law of resistance of, 349
Arms and ammunition, on recent improvements in small, 117, 131
Arsenic, antimony, and molybdenum, separating tin from, 226
Arts, Society of, 114
Art workmanship, 200
Asphalt paving for streets, the Val-de-Travers, 408
Associations of Foremen Engineers, 309, 328
Automatic feed water apparatus, 183
Axles, improved method of lubricating, 443

B.

BAILEY and Co.'s time regulator, 350
Bamford and Son's improved slow combustion stove, 186
Batho's and Aveling and Porter's steam road rollers, 353
Baumann's steam pump, 422
Beetroot, improved machinery for extracting juices from, 134
Bessemer steel, 138
Bicycles, the "Lewes" step for, 351
Billiard pipe, a new, 46
Birmingham Chamber of Commerce, 156
Bitter Lakes, Suez Canal, the, 219
Black Forest Railway, 175
Blackfriars Bridge & Westminster, 272
Blackwall, new dock at, 185
Boiler compositions, incalculous use of, 22; explosions in 1869, 154; tubes, apparatus for removing soot and deposit from, 44
BOOKS, NOTICES OF:—
Ansell's mint and its critics, 236
Brinsmead's history of the piano, 346
Edwards' our domestic fireplaces, 92
Green's photographers annual, 93
Newbiggin's gas manager's hand-book, 399
Nisbett's science and art of arithmetic, 92
Partridge and Co.'s "British Workman," "Band of Hope Review," and "Children's Friend," 93
Booth's improved mill for rolling metal rods, wires, &c., 407
Boutet's Channel bridge, 259
Boutet's improved machine for rolling and shaping metals, 440
Bownman's patent crossing signal for railways, 441
Breech-loading guns, 366; rifle, the Soper, 269
Bremme's apparatus for softening and breaking flax, 223
Bridges, suspension, 397
British and foreign workmen, 174; Architects, Royal Institute of, 42; Association, 154
British-Indian submarine cable, 273
British-Australian Telegraph Company, 20, 398
Builders' price books, 74
Bullet shield, Stringfellow's, 27
Burleigh rock-drilling apparatus, 389

C.

CABLE, the British-Indian Submarine, 273; the Persian Gulf, 217
Cables and ropes, a mechanical method of coiling, 444
Calico, a steam fire engine for, 275
Candlestick, match box, 117
Cannon, improved projectiles for rifled, 438
"Captain," H.M.'s turret ship, 172
Carriage springs, Cochran's improvements in, 188
Cask or drum, improved metallic, 279
Central-fire cartridge and extracting apparatus, 152
Channel bridge, Boutet's, 259; the, 283, 367; intercommunication, the, 439; passage, the, 336, 379; the, by Vice-Admiral Sir Edward Belcher, 295

Chassepot's new central-fire cartridge, 152
Chemical treatment of sewage, the, 344; works, revolving furnaces in, 25
Chimney guard or wind deflector, Windhausen and Bussing's, 457
Chromium oxychloride, on a new, 10
Civil and Mechanical Engineers' Society, 238; Engineers, the conversazione of the Institution of, 399, 418; the Indian Government and the, 83; Institution of, 58, 76, 94, 172, 284, 274; service appointments, open competition for, 421
Clip drums, 91
Coal discoveries in India, new, 46; discovery in Central India, visit of Lord Mayo to a, 265; supply, our future, 137
Coalfield at Nottingham, the new, 368
Coinage contracts, 434
Colleges for foremen, 20, 39
Collieries, new safety lamp for, 138
Combined air and steam motive power, who invented it? 425
Combination windlass, 9
Compasses, Earl Caithness' improvements in ships, 333
Competition for civil service appointments, open, 421; v. monopoly, 73
Competitive lamps for the Thames Embankment, 387; trial of steam fire engines held at Glasgow, March 18, 1870, report of the judges, 245
Compositions for the bottom of vessels, 227
Compound engine, Perkins', 349; marine steam engine, on the, 317
Constant & intermittent supply of water, 163
Conversazione at Burlington House, Royal Society, 204; of the Institution of Civil Engineers, 399, 418
Converse's brad-driving tool, 173
Cordova Exhibition, 31
"Cornubia" road locomotive, the, 335

CORRESPONDENCE:—

Alumina, J. E. N., 32
America, steam boiler explosions in, Hartford Steam Boiler Inspection Company, 247
Australia, central weighing machines for, Thomas G. Williams, 446
Ballot-voting apparatus, Crutenden and Wells, 48; Robert Essery, 32, 67
Bottle cartridge, the, W. C. Dodge, 48
Boutet bridge, the, John G. Winton, 284
Channel bridge, Fairplay, 229; crossing the, George Remington, 286
Combined air and steam, G. B. Galloway, 428; as a motive power, Richard Eaton, 409, G. Bell Galloway, 409, 416
Dyeing, a new discovery in, H. W. Barry, 192; Charles Fauntleroy, 229; J. Walker, 228; improvements in, J. Walker, 211
Electro-bronzing, J. W. P., 320
Hydrostatic steering apparatus, E. A. Inglefield, Rear-Admiral, 32, 67
Inventive people, an, Frank Spence, 13
Mechanical tests, J. H. Lefroy, 32
Metropolitan tramways, a suggestion for the, J. Walker, 371
Page's submerged tube for the Straits of Dover, John G. Winton, 301
Patent Laws, the, W. C. T., 193
Pigs' dung as a fulling material, Ilex, 320
Preserving ships' bottoms from fouling, D. A. Gibbs, 247
Railway platforms, a Draughtsman, 32
Raising water, a new method of, Edward Hoyle, 372
Sewage question, the, F. Target, 193
Society of Arts, W. Lloyd Wise, 157
Signalling at sea, W. W. Kiddle, 459
Stone and slate cisterns, Dawson and Christy, 139
Stranding on a lee-shore, J. W., 458
Submarine railway between France and England, James H. Gresham, 159
Telegraphs, the, Frank Ives Scudamore, 390
Thames Tunnel, the, Robert Shenton, 156
Walker and Co.'s, Messrs., new dyes, J. Walker and Co., 301
Workmen's International Exhibition, 1870, Auberon Herbert, Thomas Paterson, J. W. Probyn, 13
Crank shaft, the torsion of, 330, 345
Cregeen's registered window sash fastener, 353
Croft's fish-tail rudder, 80
Cruise of the combined Channel and Mediterranean squadrons, 222
Crystal Palace, the, 350, 445
Cuba Telegraph Company, the, 329

D.

DAMP-PROOF buildings, 21
Darien Canal, the, 354
Deep-sea explorations, 406, 426, 439
Description of a sea-going iron-clad ship of war, 369
Dewe's improvements in indicator locks, 241
Discharging grain from ships, 181
Double-acting steam pump, Baumann's, 422
Dover and Calais international railway, Mr. Lowe's proposed, 406
Drawing office management, 127

Durability of timber, 156
Dyeing, a new discovery in, 73
Dyer's house closet, 39
Dynamometer, Jasper's patent, 63

E.

EARL Caithness' improvements in ship's compasses, 333
Edmunds' case, the, 61
Egress from public buildings, 235
Elastic seats, improvements in, 263
Electric faro box, the, 384
Electricity and telegraphy, 57, 74, 90, 110, 129, 164, 183, 292, 347, 401, 435
Elementary papers on designing machinery, 199, 272, 327, 416, 433
Engine, hydraulic hop press anhorizontal, 276; improvements in America, recent, 141; Perkins's compound, 349
Engines, Shand's improvements in steam pumping and fire, 261
Engineers in Scotland, Institute of, 149, 167; Society of, 112; work for our, 46
Engineering, hydraulic, 19; profession at home and abroad, the future prospects of the civil, by J. Crosbie Dawson, A.I.C.E., C. and M.E. Society, &c., 238
England and France, passenger traffic between, 388
English iron abroad, 295
Ergasteria, the lead works of, 205
European system of railways, the, 218
Exhibition, the Cordova, 31
Expansion engine, high pressure, 116
Experiments, ordnance, 256; recently proposed on the resistance of ships, the, 370
Explorations, deep sea, 406, 426, 439
Explosions, a year's steam boiler, 184; kitchen boiler, 187

F.

FAIRLIE engine, the, 91
Falmouth, Gibraltar, and Malta cable, 382
Faro box, the electric, 384
Field boiler, recent improvements in the, 64; gun, a new bronze, 74
Filtration of river water, influence of rain on, 235
Firebars, improved feed water, 368
Fire engine for Callao, a steam, 275; engines, Shand's improvements in steam pumping and, 261; in America great, 300
First-class workman, what constitutes a, 65
Fleet of the future, the, 298
Foreign coinages, government contracts for, 362, 381; trade of the United Kingdom, Holland, and France, 148
Foremen, colleges for, 29, 39; engineers, association of, 309, 328, 346, 363; London association of, 28, 120, 129, 262, 309
Forged iron work, 115, 137
Forging and planishing metals, Mitchell's improvements in, 244
Fox's improvements in the permanent way of railways, 316
Fraser's improvements in steam boilers, 386
Fresh meat, Gamgee's method of preserving, 221

G.

GAMGEE'S method of preserving fresh meat, Professor, 221
Gas and water mains, tap for, 45; economy, 424; cooking stove for 1,000 persons, 437; heated steam lift at the Crutched Friars Warehouse, 277; manager's hand book, the, 399; meters, improvements in, 227
Generators, Salisbury's improvements in steam, 441
Gold currency for India, 291
Government contracts for foreign coinages, 362, 381
Great Britain, iron trade of, 387
Griffin's new longitudinal permanent way, 281; new rail-way systems, 337
Grim's combination continuance rail, 389
Guns and armour, 182; and their projectiles for the navy, 84; breechloading, 366
Gunpowder and guncotton, the comparative effect of, 370
Günther's improved silent ventilating fan, 206

H.

HANDBOOK, the gas manager's, 399
Hancock's patent screw propeller, 441
Hawkhaw, John, C.E., 46
Harvey torpedo, the, 166, 259
Heating buildings by hot water, 397
Havre de Grace, railway bridge at, 157
Henwood's paper on the centre of gravity of a ship and its relation to stability, 316
History of the piano, 346
High-pressure expansion engine, 116
H.M. ship "Captain," 427
Hoist and winding engine, Tangye's system, 420
Hogg's secret code, 445
Hop press and horizontal engine, hydraulic, 276