PRACTICAL MECHANICS PUBLISHED MONTHLY

VOLUME 13

October, 1945, to September, 1946

(Nos. 145 to 156)

EDITOR :

F. J. CAMM

Editor of "Practical Engineering," "Practical Wireless," Etc., Etc.

Author of "Screw Thread Manual," "Wireless Transmission," "Radio Training Manual," "Newnes' Engineer's Manual," "Workshop Calculations, Tables and Formulæ," "Practical Mechanics Handbook," "Radio Engineer's Vest Pocket Book," Diesel Vehicles : Operation, Maintenance and Repair," "Motor Car Principles and Practice," "Practical Wireless Circuits," "Dictionary of Metals and Alloys," "Practical Wireless Encyclopadia," "The Superhet Manual," "Practical Wireless Service Manual," "Newnes' Short-wave Manual," "Watches : Adjustment and Repair," "Practical Motorist's Encyclopædia," "Engineer's Vest Pocket Book," "Everyman's Wireless Book," "Newnes' Television Manual," "Wireless Coils, Chokes and Transformers," "Wire and Wire Gauges," "Mathematical Tables and Formuæ," "Screw Thread Tables," "Refresher Course in Mathematics," "Slide Rule Manual," "Radio Valve Data Book," "Newnes' Plastics Manual," "Gears and Gear Cutting," "Mastering Morse," "Metric Tables," "Newnes' Engineer's Reference Book," Etc., Etc.

LONDON : GEORGE NEWNES, LTD., TOWER HOUSE, SOUTHAMPTON STREET, STRAND, W.C.2

INDEX

Choking coil, 368 Chrome, brass and copper plating, 106 Chromium plating, 184

Conclusion Composition of patentees, 33 Composition of patentees, 377 Compound, anastigmat lenses, 68 Concrete, light-weight, 223 Condensation 69

Convex mirror, 147 Copying a sketch on glass, 106 Cosmic Rays, 92

Counting-house equipment, 142

- cape, streamlined, 102

- lamp, improved, 285

C.P.R. cargo ships, new, 64

Cycle, a long, 344

Colotype process, 33

Cine film, enlargement from, 223 Cinematograph screen, translucent, 224 Clock repair, a novel, 331 "Cloth felt" pressing, 404 Coal-mining machinery, modern, 131, 203

Condensation, 69 Converting D.C. motor for A.C. working, 260

D

A

Accommodating seat, 285 Accommodating seat, 285 Accumulator making, 223 A.C.-D.C. converter, 261 "Acid" plating bath, 333 Air compressor, small, 224 Air-conditioning, 6 Aircraft Heating Systems, 414 — security, 366 Air filtering material, 224 Air filtering material, 224 Air is mighty hard, 436 Air is highly hard, 430 Air transport, comfort for, 422 Alabaster, composition of, 440 Aluminium, dark finish for, 185 Anti-damp brick, 142 Aquarium water testing, 441 Arc-welding equipment, small, 404 Asbestos mix, 404 tiles, 68 Asphalt, coloured, 148 Atomic energy, more about, 52 — power, 22 - and industry, 363 Audiometer, 422 Autocycle care and maintenance, 197 Automatic-gyro, pilots, 102

B

Balloons, Jap bomb-carrying, 84 Bar magnets, making, small, 33 Barograph, making a, 67 Barometer making, 107 "Base-exchange" material, 223 Bath, renovating a chipped, 441 Battery tester, 404 Bed-warmer, an electric, 204, 295 Bed-warmer, an electric, 204, 295 Beetles, eliminating wood-boring, 107 Bituminous emulsion, 148 Blankets for 'planes, 285 Blunt blades, for, 259 Boeing B-29, 64 Bombers to furniture, 95 Bombs, suspended, 429 Bonding compound, 260 Bone, small articles from, 261 "Brabazon I," power for the, 428 Bridge building in Burma, 324 Bristol aero engines, 253 British civil aircraft, 358 — Interplanetary Society, 233 Bronzing powders, 184 Burglar alarm, 369

C

Calculating machine, a glant, 323 _____, the, 342, 389, 427 Camera enlarger, a, 158, 200 Cameras for recording atomic bomb blast, 278 Canoe, an 8-ft. wooden, 237 , modified "P.M.", 403 Canvas Dressing, 368 Car Mirror, 142 polishes, 261 Car's performance at night, 10 Celluloid, etching on, 441 film, writing on, 405 solution, colouring, 332 Cellulose.cement, 33 Cement for Gramophone record material, 107 lenses, 32 Chalks and crayons, 33 Charging car batteries, 14, 146 Choke for fluorescent lamp, 333

stampings, 69

Damp cellar, treatment for, 33 walls, 69 Dart holder, pocket, 396 Dead-black for a lantern, 106 De-gaussing, 5 de Havilland Dove, the, 118 Descaling a boiler, 289 Design, National Exhibition of, 81 Designers, invitation to young, 157 Destroyer, a fine model, 238 Diesel electric locomotives, 249

Diesei-eiectric locomotives, 249 Distemper, 332 Down-draughts, to stop, 396 Dowty liquid springing, 279 Draughting set, a miniature, 130 Drawing-table, an adjustable, 194 Dream phenomena, 92 Dry shaving 16. Dry shaving, 16 Duplicator ink, 368 Dyes for veneers, 106

10

Earrings, scented, 396 Ear-stalking, 366 Electric arc furnace, 440 clock, coils for, 261 drive for a gramophone, 344 furnace, small, 297 lift, circuit for operating an, 297 lighting plant for a pleasure boat, 333 Inglituing plane of a pleasare boar, 555
 soldering iron, 368
 water-heater, 333
 Electrically heated clothing, 204
 Electricity, the annals of, 25, 90, 177, 259, 400 433 Electro-mechanical differential analyser, 383 Electron microscope, 261 Electro-plating, 147 Emulsifying an oil, 333 England, the home of timepieces, 117 Ethyl silicate, 296, 367 Eyes, 357

13

Fair comment, 5, 41, 77, 117, 157, 193, 233, 269, 305, 341, 377, 433 Feathers, bleaching, 147 Ferrying vehicles by air, 419 Field coils of motor, rewinding, 184 winding for a small motor, 440

Finger-prints, book on, 146 Fire alarm, portable, 422 Firing gear for aircraft, 317 Fish-filleting machine, 285 Fishing nets, waterproofing, 148 Fur-removing solution, 332

G

Galleons, painting model, 404 "Galvanism," the advent of, 25 Garage door opener, automatic, 147 Garden woodwork, 316 Gas-fire elements, 296 Gas-lighter, an electric, 9, 105, 146 —, new, 21 Gas-turbine, 2,500 h.p., 140 Gas turbines to power air-liner, 419 George Kent Model Engineering Society, 65 German aero developments, exhibition of, 245 240
patents, 413
Gilding on a clock, restoring, 260
Glass, heat resisting, 223
—, technology of, in its application to high vacuum engineering, 168
Clocal box temperature, 106 high vacuum engineering Glaze, low temperature, 106 Glazes for pottery, 368 Glazier's diamond, the, 92 Gloster Meteor IV, 256 Glycerose, preparing, 68 "Golden "lacquer, 69 Gold-plating bath, 440 Golf club, adjustable, 176 Gramophone motor details, 2 Gramophone motor details, 296 - records, recoating, 405 Grate, economic, 396 Grease and oil, removing, 147 Guitar, a Spanish-Hawaiian, 272, 310 Guillotine, a simple, 398 Gun cocker, automatic, 211 Gun-fire control, 347 Gut belting, preserving, 333 —— reviver, 224

H

Hammer heads, 219 Hand-cleansers, 185, 367 Hard-setting material, 147 Heathrow Aerodrome, 198, 199, 269 Heating for greenhouse, electrical, 148 High jump, winning the, 357 — power short-circuit testing, 12, 56, 87 Horseferry Road Cladel, 201 House warming, 295 Human eye, 92 ----- "fish," 54 Humidity of air, measuring, 223 Hydrofin, the, 274 Hydrogen peroxide, 224

ï

Ignition coil details, 369 Induction coil, 297 motors, design of, 320 Interplanetary navigation, 10 Inventions of interest, 16, 102, 176, 220, 259, 285, 366, 396, 432 Iodine from kelp, extracting, 296 , winning the world's, 96 Iron cement, 68 - printing press, the story of the first, 399 Iso-propyl alcohol, 260 Items of interest, 21, 64, 142, 215, 422 Ivory staining, 441

J

Jap "suicide "-plane, 11 Jet-bomber, test flight of, 395 Johnson's Photographic Competition, 249

L

Lantern slides, colouring, 369 _____, writing on, 404 Launching model 'planes, 142 Leadless glaze, 369_ Leather dyeing, 297 - dyes, 33 - dressing, 333 Lighting, motor-car type, for cyclists, 321 Light, phenomenon of, 31 Lighter wicks, spun glass, 140 Light-you can see by it, 436 Lime deposit, removing, 297 Landon's new airport, 198, 269 Lucas' "Freelite" wind-driv wind-driven lighting plant, 250, 331 Luminous powders, 296

M

Magnetism, mystery of, 259 Mains transformer details, 224 Manual flight possible, is, 172, 331, 367 Maps of England, new, 41 Masters of Mechanics : Aime Argand, 17 Lawie Roul 62 Lewis Paul, 62 Cody, the aviator, 128, 183 Walter Hunt, 181 Earl Stanhope, 399 Mechanical and Hydraulic Analogies, 378 Melting material, high-temperature, 107 Merchantman, birth of a, 139 Mercury, cleaning, 107 Metal, dead-black finish on, 261 -, floating, 436 surfaces, sprayed paper finish on, 224, Meteorology, mechanics of, 78, 136, 160, 212, 246, 313, 397 Microid Nalik press, 295 Micro-slide objects, mounting, 369 Mid-ocean airships, 119 Mirrors, making, 107 Mixing coloured powder with tar, 185 Mixing coloured powder with tar, 185 Modelling clay, 69 Models, the world of, 29, 65, 103, 179, 221, 257, 293, 329, 364, 401, 438 Monoplane, a lightweight duration, 384 Moon's surface, the, 351 Motor-boat, a model, 48 Matra concentrate small 106 Motor generator, small, 106 -, increasing speed of small, 441 ", rewinding small electric, 223 "Movie," like a, 285

Nazis' radar "eyes," blinding the, 98 Netherlands railways one year after the liberation, 435

New carriers, Britain's, 140 Nicotine and conine, 68 Non-adhesive solution, 405 Non-skid tread, 259 North Wales slate quarry, 249 Notes and news, 140, 219, 249, 328, 347, 395

Observatory, beehive, 295 Oil absorption problem, 224 lamp, the story of the, 17 stain, 440 Optical glass, cementing, 368 Optics, book on, 224 Oxygen from potassium permanganate, 297

P

Paint from oil records, 296 -, quick-drying, 32 Parachute harness, 366 pack, 220 Parchmenting paper, 332 Passengers flown without loss, 9,000, 140 "Paste" stones and jewellery, 440 Pectin extraction, 68 Pegasus engines in B.O.A.C. flying boats, 439 Perspex, casting, 32, 259 Petter engines, new, 216 Pewter, blackening, 260 Photo-electric bells, 416 - engraving at home, 58, 146, 183, 261 Photograph, the physics of the, 164 Photographic "bas-relief," 260 enlarger screen, 405 printing paper, 16 Photography, high-speed, of underwater explosions, 286 Phototelegraph equipment, new, 284 Pickling solution for brass parts, 405 Pictures, stationary, 285 Pipe bowls, making, 47, 183 Plastics, transparent, 184 "Planitettes," 10 Plaster of paris casting material, 332 castings, 68 Plastic armour, 27 developing dishes, 405 Plastics, transparent, 259 Plastic wood, making, 148 Plating, chrome, brass and copper, 106 —, silver and nickel, 184 Polish for concrete floor, 69 Polish for concrete noor, 69 Polishing bone, 261 Potato peeler, 176 Power plant for Vestmanna Islands, 328 Prefabricated wall structure, 102 Purifying river water, 260, 331 Pusher-type bomber, 328

Queries and enquiries, 32, 68, 106, 147, 184, 223, 260, 296, 332, 368, 404, 440 Quillaia powder, 333

R

Racing cars, model, 67 the weather forecaster, 437
 controlled ship, 215
 the story of, 42, 99, 120, 166, 205, 242, 290, 360, 423
 Radio control of models, 428
 "Radio crystals," 184
 fuse, 140, 141
 industry industry, reconversion of the, 77

R.A.F. exhibition at Warsaw, 140

Refrigeration, the elements of, 234, 281, 349 Refrigerator functioning, 33 Resistance welding, 368

Re-winding field coils of gramo. motor, 368 small motor, 404

Rocket propulsion, 19, 50, 93, 133, 174, 183, 209, 254, 275, 318, 345, 386, 420 Roofs, watertight flat, 219 Rewiring a D.C. generator as a motor, 185 Running D.C. motor on A.C., 106

S

Safety razor blade stropping appliance holder, 102 locking device, 21 Salt water to drinking water, 102 Save, if we could, 391 Saw, small circular, 295 Scale in pipes, solvent for, 33 — models, wartime application of, 143 Science is news ! 193 notes, 357, 436 Screwdriver question, a, 10, 105 Scumble stain, 147 Sewing machine, story of the early, 181 Shannon electricity scheme, 245 Sherman tank carried in a bag, 309 Ships, to raise submerged, 396 Short loading runs, 16 Short Sunderland flying-boat, 215 Silvering glass, 184 paste, 405 solution, 296 Silver plating and nickel plating, 184 Slide projectors, miniature, 430 Small induction coil, 332 Solenoid for light control, 405 Solid mercury, 440 Spark coil, lin., 440 Spectacles, anti-steaming preparation for, 223 Spinning machine, story of the world's first, 62 Spots from watercolour paintings, removing, 32 Spray painting, 322, 355, 381 "Squat tyre," 312 Steam, heating a substance by, 107 — plant for Canada, 140 Steering, power-operated, 220 Step ladder, safe, 396 Stereoplanograph, 31 Stereoscopic pictures, 142 Stirling for Australian museum, 140 Stove enamel, removing, 441 Strainer, a fine-mesh, 259 Stratosphere rocket tests, 309 Strong, nothing is, 357 Sunshine roof, 16 Supersonic sound, 92 Surgeons' instruments, 356 Symplesometer, an experimental, 348 Swim boat, making a, 392 Synchronous motor, 148 Synthetic proteins, 31

T

Talk in the stable, 108 Tanker, new turbo-electric propelled, 395 Telegraph cable, repairing a, 132 Telephone, a home-workshop, 394 Telescope lenses, 224, 259, 405 —, magnifying power of, 440 mirrors, 105 objective and eyepiece, 184 Television, preparing for, 241 Tempest II, 21 "Terrazzo" floors, 368 Testing direct current armatures, 332 Thermodynamics, the foundations of, 45, 85, 125, 170, 217, 239, 326

Thermo-electricity, power from, 208 Thermopile, the, 357 Tiles, cutting, 297, 367 —, sand and cement, 369 —, white glazed, 32 Time and motion study, 341 Tinning brass articles, 69 Toast rack, pliable, 176 Torpedo, electrically driven, 215 Town planning models, 29 Trailer axle, "P.M.," 403 Transformer-rectifier, 32 Travelling cranes, 220 Trolley buses, 16 Typewriter improvement, 259 Tyres, convenient, 285

U

Ukulele, a steel-stringer, 123

PRACTICAL MECHANICS

Umbrella cover, unsewn, 102 Units and standards, 305

V

Vacuum cleaner armature, rewinding, 147 Vacuum-cleaner, motor, 333 Vampire fighter, 328 Varnish for spraying, 297 Varnish for oil paintings, 333 Vellum, imitation, 404 Vickers-Armstrong Viking, 8 Victoria Falls hydro-electric plant, 417 Vitreosil muffle furnace, 367 Voltage control, automatic, 148

W

Walls, making sound-proof, 296

Y

Yacht, paper-built model, 403

CYCLIST SUPPLEMENT

A

All-rounder ? What is a best, 81 Around the Wheelworld, 3, 11, 19, 26, 35, 43, 51, 59, 67, 75, 83, 91

B

Britain's Touring Grounds, Shropshire, 8 ——————, Thames Valley, 16 —————, South Wales, 24 British All-rounder Competition—Result, 11 —— League of Racing Cyclists, 25

C

Centenary Memorial, 73 Champions Concert, 3 Comments of the Month, 1, 9, 17, 25, 33, 41, 49, 57, 65, 73, 81, 89 Cyclists ? How Many, 9 Cyclist Sees Them, A, 60 Cyclorama, 7, 15, 23, 31, 39, 44, 55, 63, 71, 79, 87, 95

E

Ex-Servicemen in the Cycle Trade, 57

F

First Thousand, The, 25 From My Notebook, 60

H

Highway Code, The Revised, 89

M

My Point of View, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

N

Notes of a Highwayman, 8, 16, 24

P

Paragrams, 2, 10, 18, 47, 50, 58, 66, 74, 82, 90

R

"Raise the Standard," 90 Rift Widens, The, 65 Road Policy, Proposals for a, 33 — Safety Campaign, New, 17 — System, Our, 1 — Traffic Signs, 49

S

Speed Limit in Built-up Areas, 11 Strauss, Straight Words to, 41

T

Take off the Brakes, 36 Topical Notes, 18

W

Wayside Thoughts, 4, 12, 20, 28, 34, 42, 52, 68, 76, 84, 92 Wiltshire Ways, 23