

# THE MECHANICS' MAGAZINE

AND

Journal of Engineering, Agricultural Machinery, Manufactures, and Shipbuilding

(Registered for transmission abroad.)

[EDITED BY R. A. BROOMAN.]

VOL. 5.—No. 115. [NEW SERIES.]  
VOL. 74.—No. 1961. [OLD SERIES.]

LONDON: FRIDAY EVENING, MARCH 8, 1861.

PRICE, FOURPENCE.  
By Post 5d.

## PRINCIPAL CONTENTS.

LEADERS:—	PAGE
The State of the Navy .....	153
Breakwaters and Harbours of Refuge .....	153
The Steam Plough .....	154
PROCEEDINGS OF SOCIETIES:—	
Institution of Naval Architects .....	155
Institution of Civil Engineers .....	158
The Royal United Service Institution .....	159
The London Association of Foremen Engineers.....	159
Meetings for the Week .....	160
The Agricultural and Domestic Industry of Denmark	160
Capt. Gloag's Breech-Loading Fire-Arms and Cannons	161
Huggett's Apparatus for Lighting and Extinguishing	
Lamps .....	162
Skekel's Pistons for Steam-Engine and other Cylinders	163
The Cracking of Tubes .....	164
Reaping Machines in Australia .....	164
The Dimension Thermometer .....	164
Kinipple's Water-Closets and Flushing Tanks .....	164
Stevens' Floating Bomb-Proof Battery .....	165
The New United States Patent Law .....	166
CORRESPONDENCE:—	
The Warrior .....	166
Cost of Patents, and Recklessness of Patentees .....	167
Steam Fire-Engines .....	167
Railway Passenger Signals .....	167
Law Report .....	167
Our Weekly Gossip.....	168
Abridged Specifications of Patents .....	168
Provisional Protections .....	172
Patents Applied for with Complete Specifications .....	172
Notices of Intention to Proceed with Patents.....	172
List of Sealed Patents .....	172
Patents on which the Third Year's Stamp Duty has	
been Paid .....	172
Patents on which the Seventh Year's Stamp Duty has	
been Paid .....	172
List of Specifications Published .....	172
Prices Current of Metals .....	172

**EXAMINATIONS IN DRAWING**, conducted by the SCIENCE and ART DEPARTMENT, will be held in the METROPOLITAN SCHOOLS of ART, during the Month of March, viz., at—  
Finsbury—William-street, Wilmington-square.  
Hampstead—Dispensary-building.  
Lambeth—Princes-road.  
Rotherhithe—Deptford-road.  
St. George's-in-the-East.  
St. Martin's—Castle-street, Long-acre.  
St. Thomas' Charterhouse—Goswell-street.  
South Kensington.  
Spitalfields—Crispin-street.

The Examination will be of two grades (1st and 2nd), and will be open to all persons, without limitation as to age, but Students in Schools of Art, Teachers and Pupil-teachers of Public Schools under inspection of Privy Council, are ineligible for examination in the 1st or easier grade. Exercises will be given in—

Free-hand Drawing from the Flat.  
" " " Models.  
" " " Memory.  
Practical Geometry.  
Perspective.  
Mechanical Drawing.

Prizes will be given to Candidates whose Drawings reach the required standard.

All Candidates for Examination must state the subjects in which they desire to be examined; at which of the above schools they wish to present themselves; and must send their names and addresses to the Secretary of the Science and Art Department, South Kensington, on or before the 5th of March.

By order of the Committee of Council on Education.  
February, 1861.

**POLYTECHNIC. — MR. RAMSDEN'S** NEW MUSICAL ENTERTAINMENT on OLD ENGLISH SONGS and BALLADS, every Evening at 8.

LECTURES on ASTRONOMY, illustrated by Splendid Diagrams, on Monday, Wednesday, and Saturday, at Half-past Two. All the other LECTURES, DISSOLVING VIEWS, &c., &c., continued.

The Laboratory is open for Analyses and Students.  
NOTICE.—The INSTITUTION will be OPEN to the INDUSTRIAL CLASSES EVERY SATURDAY EVENING on PAYMENT of 6d. EACH, and the Directors are willing to negotiate with Schools, and Religious and other Societies for the admission of numbers on the most liberal terms.

**WOOD-CUT ILLUSTRATIONS FOR** manufacturers', tradesmen's, and inventors' catalogues, circulars, &c., in the first style; charges moderate.  
B. J. MALDEN, 5 Chichester-place, King's-cross.

**WANTED, a PRACTICAL ENGINEER.**  
One accustomed to work at lathe and vice preferred. Apply at Riding House-street, W. Satisfactory testimonials of character and ability required.

**IMPORTANT MECHANICAL INVENTION** of a NEW ENDLESS RAILWAY ON COMMON ROADS, saving Seventy-five per Cent., and being applicable to an almost unlimited extent. The Inventor will obtain a Patent for it; but, being an invalid (so as to be unable to work it), he will, on advantageous terms, assign the right to any one who can work it to advantage.—Apply to A. Z., care of Mr. H. C. SYMONS, Engineer, 2 George-street, Blackfriars-road, S.E.

**FOR SALE.—A HORIZONTAL HIGH-PRESSURE STEAM ENGINE**, 20-in. cylinder and 4-ft. stroke, with THREE BOILERS, in good order. Also a large HELVE HAMMER and TILT HAMMER, with Cam Ring and necessary gearing.—Apply to A. Mac Vicar, 19 Robertson-street, Glasgow.

**PUMPING ENGINES.—FOR SALE, TWO BEAM ENGINES**, each of 25-horse power, with the whole of the machinery and pipes, lately in use in the engine-house of the Portsmouth Water-Works; consisting of air-vessel, two force-pumps, 13-inch buckets, two outside pumps, two nearly new cylinders, two new slides, and two boilers 30ft. long. To be removed by the purchaser. Price £280. Apply to E. Galt, Esq., Granada-road, Southsea; or to Mr. Bradbear, at the Water-Works Office, Landport, Portsmouth.

**ENGINEERS' MACHINES and TOOLS**  
For SALE, viz.:—Punching and Shearing Machines, for quarter, half-inch, three-quarters, inch, inch-and-quarter, inch-and-half, inch-and-three-quarters, and two-inch iron. The large-sized Machines with Engine attached to drive them.—Plate-iron Bending Machines, to bend plates to a complete circle, for quarter, half-inch, three-quarters, inch, inch-and-quarter, inch-and-half, and two-inch iron, from five to fifteen feet broad.—Single-gear Counter-sink and Double-gear Self-acting Wall and Pillar Drilling Machines; Do. for Vertical, Horizontal, and Angular Boring and Drilling, Angle-iron Punching and Shearing, Improved Rivet-making, Riveting, and Corrugating Machines; strong made, with recent improvements; of the best materials and workmanship. Warranted to perform the work they are given out to do. Specially adapted for Iron-Shipbuilding, Boiler-making, &c.—Merchants and Shipping Agents supplied on liberal terms.—Apply to JNO. TODD and CO., Kent Iron-Works, Bridge-street, Greenwich.

**METROPOLITAN BOARD of WORKS.—**  
MAIN DRAINAGE of METROPOLIS.—DEPTFORD PUMPING STATION.—To Builders, Contractors, and others.—The Metropolitan Board of Works hereby give notice, that they will meet at the Office of the Board, Spring-gardens, S.W., on Friday, the 12th day of April next, at Twelve o'clock at noon precisely, and will then be prepared to open TENDERS by parties who may be willing to contract for the construction of Two Engine-houses, Boiler-house, Chimney, Filth-hoists, Coal-sheds, Dwelling-house, Iron-wharf Wall, Brick and Iron Sewers, and for the execution of other works in connection therewith, on ground adjacent to Deptford Creek and the Greenwich Branch of the South Eastern Railway, in the county of Kent.

Parties desiring to submit Tenders may, upon payment of £1 1s., obtain plans, sections, specification, form of tender, and other particulars, on application to Mr. J. W. Bazalgette, engineer of the Board, at the Office of the Board, Spring-gardens, between the hours of Nine a.m. and Four p.m., on and after Monday the 4th of March next.

Tenders addressed to the Metropolitan Board of Works must be delivered at the Office of the Board, Spring-gardens, S.W., before Four o'clock p.m., on Thursday, the 11th day of April next, and no Tender will be received after that hour.

The Board do not bind themselves to accept the lowest or any Tender, and the party whose Tender shall be accepted will be required to provide two approved sureties for the due performance of the works.

JOHN POLLARD, Clerk of the Board.  
Spring-gardens, 26th February, 1861.

**DR. HOFMANN, F.R.S.**, will commence a Course of Twenty-four Lectures, on Organic Chemistry, on Monday, 11th March, at 10 a.m., to be continued on each succeeding Tuesday and Monday at the same hour.

These Lectures will be delivered at the Royal College of Chemistry, Oxford-street. Fee for the Course, £1.  
TRENHAM REEKS, Registrar.

**WHY BURN GAS IN DAYTIME?**  
**CHAPPUIS' REFLECTORS**  
Diffuse Daylight in Dark Places, and at Night they Save Fifty per Cent. of Gas.  
PATENTEE AND MANUFACTURER,  
P. E. CHAPPUIS,  
69 FLEET STREET, LONDON.

**RAILWAY ACCIDENTS.**—The Railway Axle Box Company call the attention of railway directors and engineers to the increased safety and other advantages derived from the use of their PATENT GREASE-TIGHT and DUST-EXCLUDING AXLE-BOXES, by the use of which the risk and danger of hot axles are entirely removed, and a great saving effected in the wear and tear of the bearings and journals, and the consumption of grease. Upwards of 100,000 of the Patent Axle Boxes are now in use on the principal home and colonial railways. Further particulars may be obtained at the office of the Company, 9 Arthur-street West, London-bridge, E.C.

Railway Works, Chippenham, Wilts.

January 21st, 1861.  
**TO RAILWAY COMPANIES**  
and others interested in the SAFETY and ECONOMY of RAILWAY WHEELS. Accidents from the breaking of Tyres effectually Prevented by the use of R. BROTHERHOOD'S Patent Fastenings, by which the tyres are so firmly fixed to the wheel that should they become broken they cannot possibly fly from their proper position. This mode of fastening can be adapted to nearly every kind of wheel, whether new or old. Hundreds of these wheels have been running for some years on the Great Western, Wilts and Somerset, and other railways, and some have just returned to the works which have been working constantly for nearly seven years with heavy loads, and have run upwards of 115,000 miles with the tyre severed in two, without failure, and are still in working order, and £1,000 will be paid to any party using these wheels should any tyre fly off from the effect of crystallization or frost. Railway Bridges, Plant, and fittings supplied for Home or Exportation. Every information can be had on application to ROWLAND BROTHERHOOD, Railway Works, Chippenham, Wilts.

**MR. T. MEACHAM**, Consulting Engineer, Surveyor, and Valuer of Steam Boats, and all kinds of Machinery.  
2 NEW LONDON-STREET, MARK-LANE, E.C.

**CLIFFORD'S PATENT** for UNLASHING, LOWERING and DISENGAGING BOATS.—For full particulars, see page 2 of the advertisement sheet of the last and next number of the MECHANICS' MAGAZINE.

**THOMAS CRESSWELL, ENGINEER**, Surrey Iron Works, Blackfriars' Bridge, London, Manufacturer of Improved Portable, Traction, and Stationary Engines. Portable Steam-Engines Lent on Hire, from 4 to 25-horse power. See larger advertisement in last and next numbers of the MECHANICS' MAGAZINE.

**HART & SON, MALLEABLE IRON-FOUNDERS**, 4 Vine-street, York-road, Lambeth. Orders for Malleable Iron Castings executed within a week.

**FORREST & BARR, ENGINEERS and MILLWRIGHTS, GLASGOW.**—Manufacturers of Patent Safety Derrick Cranes; Sawing, Planing, and Wood-working Machinery; High-pressure and Condensing Steam Engines; Grain Mills and Builders' Plant.

**THE BEST and CHEAPEST TEAS and COFFEES** in England are to be obtained at PHILLIPS and Co., Tea Merchants, 8 King William-street, City. A Price Current free. See also large advertisement in last number for each month of MECHANICS' MAGAZINE.

142 CHEAPSIDE.

**NEOTERIC CUTTING, RHABDOLOGICAL FITS, TELESMATICAL TASTE, MELLI-FLEUNT COURTESY, and a COAT for a GUINEA.**  
Trowsers and Vests at exceedingly Low Prices.

**IMPORTANT to MANUFACTURERS.**—WILLIAM LOVELL MOORE, Designer and Draughtsman, having studied and practised original designs for more than Twelve Years, offers his services to all Manufacturers requiring good and pure designs. Illuminator on Parchment and Vellum. 13 Guildford-street East, Clerkenwell. N.B.—Apprentices Wanted.

J.162

P