

ENGINEERING INVENTION.

A steam muffler has been patented by Mr. Thomas E. Hill, of Rahway, N. J. It has an outer and inner casing, with perforated plates surrounding the latter, held by rods and spaced by short intermediate tubes, there being a weighted lever to determine the pressure at which a valve will lift to blow off steam, with other novel features.

AGRICULTURAL INVENTION.

A potato planter has been patented by Mr. James W. Estes, of East Atchison, Mo. It is supported upon a wheel carriage and has an adjustable furrow opener, adjustable covering blades, distributing arms arranged to reciprocate within a hopper, and vibrating fingers to pick the potatoes from the hopper and deposit them within a vertical tube in rear of the hopper.

MISCELLANEOUS INVENTIONS.

A fare register has been patented by Mr. Henry R. Coffey, of Stockton, Cal. This invention covers a novel construction, combination, and arrangement of parts for a register designed to be simple, convenient, and durable, and which may be readily carried about the person of the operator.

A glove fastener has been patented by Mr. George H. Coursen, of Baltimore, Md. It has a cylindrical keeper with one lower edge struck up to form a lip, and a radial locking bar, with a series of teeth on the under surface, adapted to project through the keeper and engage the lip.

A glove fastener forming the subject of another patent issued to the same inventor has a locking plate provided with an arched body, and an inwardly curved latch integral with one end having an outwardly projecting horizontal tongue, there being a keeper with a slot in its upper surface adapted to receive the latch and tongue.

A bench stop has been patented by Mr. Isaac H. Terrell, of New York City. It consists of a strip of steel with one end sharpened and turned down, in the form of two prongs, while the other end has teeth, and steel projections thereto, making a stop which can be readily driven into any part of a carpenter's bench to hold work in position.

A lathe for turning wooden handles has been patented by Mr. Nathan R. Flint, of East Hiram, Me. This invention covers a novel construction and combination of parts in a lathe adapted for turning a number of wooden handles at a time to the shape of a former, and enables the handles to be made larger or smaller than the former.

A chalk line holder has been patented by Mr. Benjamin Howard, of Sheep Ranch, Cal. It consists of an oval flexible chalk receptacle, with eyelets at the ends, one serving as a stopper, so made that the line or cord may be wound on the holder and the line thoroughly covered with chalk as it is drawn through the holder.

A vehicle wheel has been patented by Mr. Henry L. Smith, of Jericho Center, Vt. This invention provides a construction designed to increase the durability of the wheel and axle, and enable a ready and easy attachment of the one upon the other, securing an even wearing of the wheel upon the axle, and enabling repairs to be readily made.

A draught timber for cars has been patented by Mr. John B. Owens, of Jackson, Tenn. The invention is especially adapted to facilitate the construction of freight cars, providing means whereby the draught timbers may be expeditiously and effectively bolted to the sills, while the means employed are very simple.

A locket has been patented by Mr. Joseph Cohn, of New York City. It has an exterior casing with a front and rear plate, between which is pivotally held a picture casing adapted to be locked in place by a spring catch, with a spring held at the pivot of the casing which serves to force the latter outward when released by the spring catch.

A combined bridle and halter has been patented by Mr. John O. Walton, of Belle Vernon, Ohio. This invention relates to halters made of a single piece to fit, respectively, over the head and nose of the horse, secured at the folds by metal corner pieces, upon which it may be readily adjusted, and otherwise secured by metal fastenings without the use of seams or rivets.

A rasp has been patented by Mr. Philip S. Stokes, of Tennent, N. J. It is an improved article of manufacture, in which the teeth are perfectly and uniformly raised from the surface of the plate by a punch, from recesses of less depth than in rasps cut in the usual manner, while each tooth is re-enforced by extra metal, the teeth being brought to a very sharp point or edge without cutting or turning.

A neck tie fastener has been patented by Mr. Adolph Hellenberg, of New York City. It consists of an open spring clasp finished to form the knot of the tie, and made to be opened at the back to receive and retain the neckband after its free end has been passed around the neck, and is to be used in connection with a special construction of the necktie, to avoid the necessity of tying.

A device for side dressing saws has been patented by Mr. George Glass, of Cadillac, Mich. This invention provides means whereby the files serve as guides for the saw being treated, and are so formed that they will not abrade the teeth below the swaged portion, but will equally dress off the opposite sides of this portion, the teeth being held from being pressed to one side or the other, that they may be dressed off evenly as desired.

A knife sharpening attachment for skiving machines has been patented by Messrs. Philo B. Clark and George J. Klingler, of Brooklyn, N. Y. It is for constant attachment to a special construc-

tion of leather skiving machine, whereby the sharpening disk may be revolved by power from the machine, the disk being adapted for accurate and convenient adjustment to the knife, and to be used thereon with great facility.

An adding machine has been patented by Mr. Charles C. Moore, of New York City. Combined with a numbering disk and rack for turning it are sliding plates operated by the numbering disk, with a second and other numbering disks also operated by sliding plates, and other novel features, the machine allowing a period of deferred action between an apparent and the actual "carrying," whereby friction and loss of power are obviated.

A combined plug and ferrule for wash tray connections has been patented by Mr. Cornelius J. Phillips, of New York City. The construction is such that the ferrule is made to serve the double purpose of ferrule and holder for the pipe in the tray, and it furnishes the resisting flange for the drawing action upon the pipe by the jam nut, to avoid the use of coupling, and so that any length connection may be used.

A discharge mechanism for vacuum pans forms the subject of two patents issued to Mr. Richard G. Peters, of Manistee, Mich. The inventions are especially designed for application in the manufacture of salt, where the brine is held in suspension in a vacuum pan, and a leg extends therefrom in which the salt precipitates, there being a cylinder and piston connected therewith, and a valve for controlling the discharge of the precipitate, one construction having a leg with valve casing, and a pocket valve rotatably supported therein, with mechanism whereby the valve may be reciprocated longitudinally in its casing.

SCIENTIFIC AMERICAN
BUILDING EDITION.

JUNE NUMBER.—(No. 32.)

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3. A cottage of field stone and wood, perspective and floor plans.
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5. Sketch of a residence at Minneapolis, Minn.
6. Perspective view of a small suburban or seaside cottage costing one thousand eight hundred dollars.
7. Sketch of the residence of Ex-Gov. Hamilton at Kenwood, Ill.
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The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

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The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 98 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

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Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

Lockwood's Dictionary of Terms used in the practice of Mechanical Engineering, embracing those current in the drawing office, pattern shop, foundry, fitting, turning, smith's and boiler shop, etc., comprising over 6,000 definitions. Edited by a foreman patternmaker. 1888. Price, \$3.00. For sale by Munn & Co., 361 Broadway, New York.

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The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Safety Elevators, steam and belt power; quick and smooth. The D. Frisbie Co., 112 Liberty St., New York.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28.

Double boring machines. Double spindle shaping machines. Rolleston Machine Co., Fitchburg, Mass.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

NEW BOOKS AND PUBLICATIONS.

MINE SURVEYING. By Bennett H. Brough. London: Charles Griffin & Co. Pp. 302. Price \$2.50.

This is a book intended primarily for students, and embodies the substance of the course of instruction in mine surveying given at the British Royal School of Mines, with which the author is connected. His admission, therefore, that "no mine surveys made in this country [England] approach in accuracy those of the collieries in Pennsylvania, United States," will probably be somewhat of a surprise to English mining engineers, whose attention he directs to "recent improvements in foreign practice." The appendix gives the examination questions and exercises of the City and Guilds of London Institute.

YANKEE GIRLS IN ZULU LAND. By Louise Verceles-Sheldon. New York: Worthington & Co.

This is a sketchy and spirited account of a visit of a party to South Africa, in search of health. The book is beautifully illustrated, and gives daily occurrences and impressions in a style so vivid that the imaginative reader may almost conceive himself or herself one of the party.

OLD AND NEW ASTRONOMY. Parts I. and II. By Richard A. Proctor. London and New York.

Two parts of this attractive work have now been received, representing a total of 128 pages. In its typography and illustration, nothing is left to be desired, and Mr. Proctor's vivid and picturesque treatment of the subject is tinged with the attractiveness due to the individuality of a pronounced nature. The different methods of projecting the earth's surface occupy much of the second part, and as elucidated, the subject is excellent reading. We also commend the author's preface, in which he gives his views as to why the book should be written, and other details, all expressed in the picturesque way familiar to the readers of *Knowledge*.

AN ELEMENTARY COURSE IN DESCRIPTIVE GEOMETRY. By Samuel Woolf, A.M. New York: John Wiley & Sons. 1888. Pp. x, 152. Price \$3.

This work aims at the less severe treatment of its subject. Perspective is freely made use of to indicate the relations of planes of projection to each other, and of objects thereto. Its author, professor in the College of the City of New York, where much attention has long been given to the "poetry of mathematics," as it should be called, embodies naturally the result of much earnest work in the lecture and recitation room. It will be of value to all students beginning the subject. Development of surfaces is treated rather shortly, yet its principles are so simple, and so strictly based on the general subject, that perhaps a little is as good as a great quantity.

THE FUNDAMENTAL PRINCIPLES OF CHEMISTRY. By Robert Galloway, M.R.I.A., F.C.S. London: Longmans, Green & Co. 1888. Pp. xii, 364.

The claim made on its title page, that this work treats chemistry by a new method, is not without foundation. Abandoning the subjective treatment by description of the properties of elements and their characteristic compounds, the author attacks the subject as a whole. Matter, molecular attraction, gravitation, ebullition, density, sublimation, classes of compound substances, are simple headings, and the scheme is carried out through the whole book. At intervals the practice of chemistry is given in considerable detail. It is not too much to say that the work is a really important advance on the time honored treatment, and many who have studied by the old method would find themselves well refreshed and the scope of their intellectual vision enlarged by the reading of the book. Exercises in calculations and experiments to be performed by the student are scattered through the book, and solutions of such as required are given in the end.

TABLES OF THE PROPERTIES OF SATURATED STEAM AND OTHER VAPORS. By Charles H. Peabody, B.S. New York: John Wiley & Sons. 1888. Pp. 25, 35. Price \$1.

This book, in its first section of 25 pages, gives the mathematical treatment of the subject of saturated steam and other vapors. With great clearness the author lays down the principles, and applies formulae to steam, sulphurous oxide, and ammonia. Then with a new pagination a thirty-five page table of data of saturated steam is given. The book is a most valuable contribution to steam engineering, and seems to supply a want in technical literature.

NOTES ON THE COMPRESSIVE RESISTANCE OF FREESTONE, BRICK PIERS, HYDRAULIC CEMENTS, MORTARS AND CONCRETES. By Q. A. Gillmore, Ph.D. New York: John Wiley & Sons. 1888. Pp. vi, 198. With a number of folding charts. Price \$3.50.

The eminence of the distinguished and lamented author of this work, joined to the fact that the tests were made on the great Watertown testing machine, thus giving him the best facilities in the world for his work, render all criticism of this book needless. The titular subject is treated not only in detail, but with great interest, and the reader's attention is never allowed to flag from inadequate expression or tedious prolixity. It is a work that no civil engineer can afford to be without, and it is a good memorial of the author, and a fitting remembrance for all to possess who have followed his career in the engineering world.

SEASIDE AND WAYSIDE. No. 2. By Julia McNair White. Illustrated by C. S. King. Boston: D. C. Heath & Co. 1888. Pp. viii, 175.

This is a good sample of the modern method of teaching. It is a school reader devoted to the natural history of insects, radiates, and crustaceans, so that a bright child, in reading it, will acquire with instruction in reading no inconsiderable information about ants, flies, crabs, star fish, and other familiar, but too little understood, creatures of the lower orders of life. The book is excellently printed and very prettily illustrated.

LESSONS IN GEOMETRY FOR THE USE OF BEGINNERS. By G. A. Hill, A.M. Boston: Ginn & Co. 1888. Pp. viii, 182.

This little work aims at an objective and pictorial treatment of the subject, and with considerable success. It covers linear, superficial, and solid geometry. Reference throughout is made to everyday objects, so as to remove as far as possible from it the abstractness of the Euclidian science. We cordially recommend the book as a sample of an attractive treatment of what is usually considered a dry subject. The author gives definitions. Some of these we would omit, as

geometrical definitions, even those which have been accepted by generations of geometers, are often weak, if not absolutely incorrect.

TREATISE ON PATENT ESTATE. By Thos. B. Hall. Cleveland: Ingham, Clarke & Co. 1888. Pp. 240. Price \$3.

Although many manuals of patent law have lately been issued, yet in the little work before us a somewhat different treatment is accorded the subject than that which is usually given in manuals.

TURNING LATHES. Edited by James Lukin, B.A. London: E. & F. N. Spon. 1888. Pp. vi, 160. Price \$1.

This book is an illustrated treatise on lathe work, designed for use in technical schools. The minuteness and practical nature of the directions given, however, make it of value to amateur turners.

The Cosmopolitan Magazine of New York City in its May issue introduced a decided novelty in the way of illustration, consisting of four pages of beautifully colored pictures in embellishment of Moncure D. Conway's rather recondite article on "The Pedigree of the Devil."

Ferns and Wild Flowers of the Rocky Mountain Region, pressed and well mounted for preservation, are now being furnished by Mr. P. J. Atkinson, of Colorado Springs, Col. They are bound in books varying in size from 3 1/4 by 4 1/4 inches to the standard botanical size of 11 1/2 by 16 1/2 inches.

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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication. References to former articles or answers should give date of paper and page or number of question.

(1) F. J. R. writes: I am making an induction coil 3 x 1 1/4 inches, and would like to know what sizes of wire I should use, also whether a bundle of iron wires is very much better than a solid iron core?

(2) O. K. writes: I have constructed a simple electric motor, as described in SCIENTIFIC AMERICAN, March 17, 1888, and connected it with an Edison light circuit, and it melts the brushes.

(3) J. C. H.—Surface tension or the attraction of cohesion is the principal reason why mercury does not distribute itself all along the tubes when thermometers are laid horizontally.

(4) W. McD. writes: In reference to the construction of the simple electric motor, could not insulated wire be substituted for the shellac-covered wire

used in armature? A. Cotton-covered magnet wire is recommended in the article referred to. The shellac insures a more perfect insulation, and at the same time serves to cement the different layers of wire together. 2. What portions of the field magnet correspond to the north and south poles? A. The poles are above and below the center of the armature.

(5) C. A. L. asks how to make and put up a mechanical telephone good for a distance of a quarter of a mile. A. For an acoustic telephone use small twisted wire cable picture cord.

(6) J. C. writes: I am making an induction coil on the general principles of one described in SUPPLEMENT, No. 569. Primary coil is finished, and works very well, but I would like to have a little information.

(7) Ph. L. S. asks: How is soluble Prussian blue prepared? A. Add a solution of ferrous sulphate to a solution of potassium ferrocyanide, and expose the precipitate to the air till it becomes blue, and wash it till all the soluble salts are washed away.

(8) W. M. M. asks the best kind of paint to use on a tin roof, something that will stop leaks as well as preserve the tin.

(9) C. R. M. asks a good cement for leather belting. A. Take of common glue and isinglass equal parts, soaked for ten hours in just enough water to cover them.

(10) T. S. A. desires (1) a good recipe for lemon sugar, one that will not taste too much of the sugar, and be insipid.

(11) G. A. D. writes: In the West a great deal of grain is bound with twine made from manilla. Has there ever been any effort made to manufacture binder twine from flax, and what success has it had?

(12) C. E. L. asks: What will drive out large black ants from a pantry? A. Red pepper, sulphur, kerosene, carbolic acid, and similar substances are efficacious in driving ants away.

(13) O. R. R. writes: 1. There is a notion prevalent in this vicinity that, in order to have good well water, the well must be open so as to expose the water to the air, and also that some way of raising the water which agitates it is to be preferred.

(14) F. G. asks how to drill by hand a one-half or three-fourths inch hole through a plate of glass one-fourth of an inch thick, for a Wimshurst electrical influence machine.

(15) G. E. T. asks: Can you give general proportions for increasing the capacity of the dynamo machine described in SUPPLEMENT to 24 or 32 16 candle power lamps?

(16) G. W. G. asks: What will destroy roaches or drive them away? A. Use fresh borax and Persian insect powder continuously until the pests are exterminated.

(17) W. C. T. asks if common putty, such as used to put in window glasses, could be used to make the porous cup of a galvanic battery.

(18) N. P. K. asks how to polish black marble. A. The process embraces five stages, beginning with the use of coarse materials and finishing with dry rags.

(19) C. S. asks: What will stick celluloid to paper, wood, glass, etc.? A. Try the following: Gum shellac 1 ounce, camphor 1 ounce, alcohol 4 ounces. Dissolve and filter.

(20) C. S. W. asks a recipe for making compressed yeast, also called German yeast. A. It is obtained by straining the common yeast in breweries and distilleries, until a moist mass is obtained, which is then placed in hair bags, and the rest of the water pressed out until the mass is nearly dry.

(21) J. H. N. asks how to make a varnish of bleached shellac to be used in the place of the common shellac dissolved in alcohol.

(22) R. C. asks (1) the proper name to apply to a person who makes insects a study. A. Entomologist. 2. A recipe for an effective insect powder.

(23) A. H. T. asks: 1. What chemical action takes place when milk sours, and why? A. The milk sugar which it contains decomposes into lactic acid. This process is known as lactic fermentation.

(24) N. A. E. asks how to make rose perfume or rose water. A. Dissolve attar of roses, 6 drachms avoirdupois, in strongest alcohol hot, 1 imperial pint; throw the solution into a 12 gallon carboy, and add 10 gallons pure distilled water at 180°-185° Fah.

(25) L. L. U. asks: How much coal will it take to melt 3,000 pounds of light scrap iron in a cupola 20 inches diameter?

(26) A. F. M. desires a receipt for taking the rust off drawing instruments without injuring them. A. Mix 10 parts of tin putty, 8 of prepared buck's horn, and 25 of spirits of wine, to a paste.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

June 12, 1888,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing various inventions and their patent numbers, including items like 'Adding and writing machine, A. C. Ludlum', 'Adjustable joint, G. C. Sweet', 'Air compressor, W. T. Forster', etc.