

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.)

TABLE OF CONTENTS.

1. Elegant plate in colors of a beautiful dwelling at Tuxedo Park, N. J., with floor plans, sheet of details, etc., James Brown Lord, architect.
2. Plate in colors of two dwellings costing two thousand two hundred dollars and two thousand four hundred dollars each, with floor plans, sheet of details, etc.
3. A cottage of field stone and wood, perspective and floor plans.
4. Perspective and floor plans for a seaside cottage, cost about five thousand dollars.
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.
8. Plans and perspective view for a cottage costing, complete, one thousand and fifty dollars.
9. A cottage on Prospect Ave. and 165th Street, New York. Perspective and floor plans. Cost, seven thousand dollars.
10. Floor plans and perspective view for a residence of moderate cost.
11. Grand Stairway of the St. Lazare Station, Paris. Half page engraving.
12. Tomb in the cemetery of Beville, H. P. Nenot, architect. Half page engraving.
13. Full page of illustrations of North St. Paul, Minnesota.
14. Page engraving of the new City Hall, Holyoke, Mass.
15. Design for a porter's lodge at North Andover, Mass. Hartwell & Richardson, architects.
16. Villa. Penmaenmayr Building Estate, North Wales. Wm. Dawes, architect.
17. Sketch of an English cottage. E. C. Poole, architect.
18. Engraving of the new Consolidated Stock and Petroleum Exchange, Broadway and Exchange Place, New York.
19. The Tower of Babel, according to Father Kircher. Two engravings.
20. Miscellaneous contents: Moses as a sanitarian.—To tell the age of a horse.—The ventilation of theaters.—Ivory gloss on wood.—Bricklaying in frosty weather.—Originality in architecture.—Painting and varnishing floors.—The Architect and Builder.—Proceedings of the National Association of Builders.—Senator Stanford's \$100,000 tomb.—Italian marble.—Masonry and cement.—Temple of Jupiter Olympius.—House painting.—Sale of ready made plans.—The Tower of Babel, two engravings.—The Sturtevant system of heating and ventilating buildings, illustrated.—A new boiler for steam or hot water heating, illustrated.—The Paragon self-feed rip saw, illustrated.—Gypsum paint.—The Humphrey Pony hand-elevator, illustrated.—Electrical supplies.—Permanency of color in paint.—Mineral wool.—A burglar proof sash lock and ventilator, illustrated.

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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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Tightand 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 Verceus-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 sample 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