

## ENGINEERING INVENTIONS.

A balanced stop valve has been patented by Mr. William Jackson, of Allegheny, Pa. Combined with a casing having an internal circular seat open at top and bottom, with opposite openings in its sides, is a tubular valve or plug with openings in its bottom, top, and sides, with other novel features, making an equal pressure on all parts of the valve, so that little power is required to turn the plug.

A piston packing has been patented by Mr. William C. McTyeire, of Hatcherchubbee, Ala. This invention covers special forms of springs and presser plate seated within the piston head to make a packing to adapt it to the wear of the cylinder, so as to always form a steam tight joint, and one differing from the ring sections and sectional rings heretofore used.

## AGRICULTURAL INVENTIONS.

A corn planter and drill has been patented by Messrs. Edgar V. and James V. Mitchell, of Martinsville, Ind. The construction is such that by the revolution of a flanged wheel, secured to the hub and to a driving wheel, the seed slide is carried to the right and left, dropping the grain twice in the revolution of the wheel, and there are four or more changes for the drill instead of two.

A corn harvester has been patented by Mr. Edward W. Comegys, of Edesville, Md. Saw toothed blades are hung on arms near the ground, and extend back diagonally to the line of travel to cut off the stumps of corn stalks near the ground, and so that a person on the machine can control the cutting and gathering into bundles of the corn and stalks of two rows while passing once between them.

## MISCELLANEOUS INVENTIONS.

A button fastener has been patented by Mr. Charles F. Harlan, of Ottumwa, Iowa. It is formed of a single piece of wire, with an eye to receive the eye of the button, while the form is such that eye or other buttons may be attached thereby to a garment without stitching.

A stem winding watch has been patented by Mr. Leo Aeby, of Madretsch, near Bienna, Switzerland. This invention covers a novel construction for simplifying the manufacture of such watches, by dispensing with the bridge, a nut and screws, and giving some other parts double functions.

A medical compound as a remedy for rheumatism has been patented by Mr. John R. Barr, of Union Star, Ky. It consists of apple brandy, star root, gum guaiacum, nitrate of potash, and prickly ash berries, compounded in certain proportions and used as stated.

An organ action has been patented by Mr. Jarvis Peloubet, of Bloomfield, N. J. The invention consists, in connection with the reed chambers, of valves and a rod for actuating them, and movable in line with its length, the arrangement being such that the reeds can be easily withdrawn for tuning.

A metal eyelet or button hole has been patented by Mr. Thomas B. Ashford, of Clinton, N. C. It is formed of a hollow disk and a face plate, between which is arranged a spring catch of peculiar construction to lock under the button head, the device being especially applicable for leather carriage curtains, to counteract the effects of wear and shrinkage.

A folding barrow truck has been patented by Mr. Joseph W. Coleman, of Schooley's Mountain, N. J. It is so made that the side bars may be folded together, and that movable bottom and side pieces may be added, to make a wheel barrow, or for use as a baggage truck, which can be folded in very small space.

An exercising chair has been patented by Mr. Joseph M. W. Kitchen, of New York city. The seat and pedestal are connected by two shafts, two pairs of standards and their rollers, slotted bars to receive the rollers, and operating handles to give an up and down movement to the chair seat, there being springs interposed to equalize the motion.

A hame fastener has been patented by Mr. Henry R. Robinson, of Golden, Col. It consists of a bar plate, a hook plate, and a locking and releasing lever, of novel construction, particularly adapted to secure the lower ends of hames to the collar of a draught animal, but applicable as a saddle girth fastener, or for other analogous uses.

A method of working button holes has been patented by Mr. Sherwood B. Ferris, of Lakewood, N. J. It consists in arranging a series of detached pieces of fabric at suitable distances apart to form the sides of the button holes, and uniting such pieces by a binder stitched to hold them in their spaced positions, and to close each button hole at the ends.

An adjustable panel snow fence has been patented by Mr. Rollin H. Gleason, of Egan, Dakota Ter. The panel is erected at the top of a cut, so that when the wind blows toward the cut it strikes a vane bringing the panel into such position that the wind will clear the snow out of the cut, the device working automatically.

A clothes drier has been patented by Mr. Benjamin F. Buxton, of Brookfield, Vt. Combined with standards is a vertically sliding plate, with arms pivoted thereto and bars pivoted to the arms, clothes being placed on the bars when the plate is lowered, when the plate is raised by a rope and pulley, and locked in position by fastening the rope to a cleat.

A ratchet drill has been patented by Mr. Isaac D. Weaver, of Lebanon, Pa. It has a stop, with different angles, so arranged that the stop may be adjusted to project in opposite directions from the casing in order to engage the work, and prevent the casing from revolving, the angular socket permitting each point to be placed therein in a variety of ways.

A folding dish drainer has been patented by Mr. Fred Eaton, of Conway, N. H. It is formed of two pairs of crossed standards united at the intersec-

tions and at the outer ends, with wires extending from the rods connecting the outer ends of the standards with the rod uniting the same at the intersections, to hold dishes upright to drain off the water, and folded compactly when not in use.

A rope reel has been patented by Messrs. William M. Kizer and Charles W. Clink, of Winfield, Mich. It has connected end frames with radial slots, rotatable disks mounted next the end frames with cam or eccentric slots, and cross rods entering the radial and eccentric slots, so that upon turning the disks the rods may be expanded to tighten within the coil of ropes.

A regenerative gas burner has been patented by Mr. Eilert O. Schartau, of Philadelphia, Pa. It has a hood above the top of the chimney to concentrate the heated air and products of combustion in a trumpet mouthed tube, causing a screw to revolve and draw in a current with the blaze, making an intense heat, expanding the gas, and promoting thorough combustion, with other novel features.

A cloth guide for fulling mills has been patented by Mr. Thomas Kitson, of Stroudsburg, Pa. It is made of glass or porcelain, whereby wear and friction are reduced, and the guide presents rounded surfaces exposed to the cloth, being inserted within the usual perforated guiding face, whereby the guide is protected from injury, and may be readily detached and replaced.

A whiffletree coupling has been patented by Messrs. Frank D. Warner and William J. Matthews, of Collinsville, Ill. Combined with the double tree and single tree are a staple, half staple, and clip with a quarter twist, it being designed that thereby the single trees will be supported in the same horizontal plane with the double tree, even when the draught strain is removed.

A sash holder has been patented by Mr. Albert Ayers, of Rahway, N. J. Combined with a socket and a plug held outward by a spiral spring is a screw designed to prevent the inner end of the plug from being pushed from the socket when the sashes are taken out of the casings, the device being adapted for car, carriage, or house windows, to prevent rattling of the sash.

A deodorizing and disinfecting apparatus has been patented by Mr. William A. Hawkins, of New York city. It consists principally of a measuring device connected with two tanks in which are placed water and undiluted deodorizing material, the latter to be diluted with water in the measuring device preparatory to being used in the receptacle to be deodorized or disinfected.

A writing machine for the blind has been patented by Mr. William H. Perkins, of Owensborough, Ky. This invention provides a machine for writing more rapidly in embossed characters, by puncturing sheets of paper, than can be done with the usual hand slate and stiletto, and so that the embossed characters will be formed in the order in which they are read, in accordance with the code of characters.

A ladder and fruit conveyer has been patented by Mr. George W. Moore, of Dunedin, Fla. The conveyer is attached to the ladder, and consists of a box with alternate inclines and openings in its front, through which the fruit is passed, and an inclined apron near the bottom, so that the fruit can be conveyed without injury to the ground from any part of the ladder.

A flooring board has been patented by Mr. John R. Baldwin, of Montgomery, Ala. It has both its under and upper side dressed, so that shrinkage will be equal on both sides, and has longitudinal concave shaped recesses in its under side of approximately the same area as the area of its upper side, making air spaces which assist in preventing dry rot, and lightening the weight.

A dial for time pieces has been patented by Mr. Henry W. Oliver, of New York city. It is a compound dial having a main inner stationary dial with one set of numerals, and a forwardly and backwardly turning outer dial, one dial indicating one-half of the day and the other the other half of the day by means of certain automatic attachments, to indicate standard time in clocks and watches.

## NEW BOOKS AND PUBLICATIONS.

**MOULDER'S TEXT BOOK.** By Thomas D. West. New York: John Wiley & Sons.

This work, though an independent volume of 450 pages, forms part ii. of "American Foundry Practice," by the same author, who is a practical iron moulder and foundry foreman. It presents original methods and rules for obtaining sound, clean castings, and gives detailed descriptions for making those more difficult moulds which call for the best skill and experience. The book also presents some practical considerations on the construction and operation of cupolas, and the melting of iron and scrap steel in foundries, with forty-six reports of cupola workings in different States, giving the experience of founders in mixing and melting iron, and the comparative economy of various methods of working cupolas.

**A TEXT BOOK OF THE MATERIALS OF CONSTRUCTION.** By Robert H. Thurston. New York: John Wiley & Sons.

This volume of 700 pages is an abridgment of the author's former work in three volumes on the "Materials of Engineering," and is intended more particularly for use in technical and engineering schools, the author having used a good portion of the work here given in the instruction of classes in mechanical engineering.

**THE PAPER MAKERS' DIRECTORY OF ALL NATIONS.** By S. Charles Phillips. London: The Paper Makers' Circular.

The list of paper makers in the world forms a handsome volume, the United States heading the list with 1,122 mills, after which come Germany with 1,037, France 512, Austro-Hungary 378, England and Wales 287, Italy 194, Russia 148. The total of the mills in the world is 4,296.

**STORIES OF INVENTION, TOLD BY INVENTORS AND THEIR FRIENDS.** By Edward E. Hale. Boston: Roberts Bros. 1885.

In his preface, Mr. Hale recalls the legend of the old Public Library at Dorchester, which was only opened on Saturday, and where the usual message brought by the little people to the perplexed librarian was that "Mother wants a sermon book and another book." To decide what this "other book" shall be is largely the purpose of the series of which the present volume is the fifth and concluding number. It is a series intended to give young people hints about their reading. These suggestions come very pleasantly from the lips of their old friend Mr. Frederick Ingham, or Uncle Fritz as he is commonly called, whose various travels and adventures are pretty thoroughly known to old and young people all over the land. The club of five and twenty nieces and nephews who gather around Uncle Fritz at Lady Oliver's house, near Boston, have been instructed according to Emerson's rule, "Read in the line of your genius," and have, in deference to the varied talents of their members, considered successively the tales of soldiers, of sailors, of adventurers, of discoverers, until now they meet to read up the lives of inventors. With the aid of the chief in the arm chair, they make out a number of very interesting stories, from Archimedes and the earlier inventors down to Bessemer and Goodyear. They are all attractively told, and will stimulate young people to investigate for themselves the wealth of information stored up in our libraries.

**NATURE'S TEACHINGS. Human Invention anticipated by Nature.** By the Rev. J. G. Wood, M.A., F.L.S. Boston: Roberts Bros. 1885. Illustrated.

In this volume of analogies, the author has attempted to show that there is scarcely a single invention of man which has not its prototype in nature, and that the largest results have sprung from apparently the most insignificant means. He traces the origin of our common tools and implements in navigation, war and hunting, architecture, optics, acoustics, and the useful arts generally, to some model in either the vegetable or animal world; and as thence to his tale, points to the same sources for the inspiration for further achievements. It is a book which shows ingenuity, and is interesting from the glimpses of natural history which it affords.

**FOWNES' MANUAL OF CHEMISTRY. A New American from the Twelfth English Edition. Embodying Watts' "Physical and Inorganic" Chemistry.** Philadelphia: Lea Brothers & Co.

Professor Fownes' work has long been a standard, and, although there are now more elaborate treatises on every branch of the subject, Fownes' Manual continues to be among the most popular of all books on chemistry. It has been many times re-edited, since the death of the author in 1849, as was absolutely necessary from the changes in chemical nomenclature and the advances in our knowledge of chemistry; but it still maintains the character of an excellent elementary treatise, while being very comprehensive in its scope. With the present edition is also incorporated Dr. Watts' admirable revision, almost amounting to an entirely new work, of the portion on Physical and Inorganic Chemistry. This part of the work fills about one-half of the 1,050 pages in the volume, and affords an excellent introduction to the study of chemistry in 100 pages on physics, followed by the chemistry of the elementary bodies and the chemistry of the metals. The book has an excellent index, and is published at a comparatively low price.

**PARIS IN OLD AND PRESENT TIMES.** By Philip Gilbert Hamerton, Officier d'Academie. Boston: Roberts Bros. 1885.

To those who are already acquainted with Mr. Hamerton's writings, and particularly with "The Intellectual Life" or some of his art critiques, it will be quite unnecessary to recommend the present volume, for they will take it for granted that the book cannot be other than interesting. His point of view is habitually unique, for both education and circumstances have made him a spectator rather than an actor in the events of every day life. There is consequently something about his writings which always breathes of a certain intellectual abstraction, though it is never carried so far as to become distasteful. In his treatment of even so apparently a material subject as the topography of Paris, this characteristic is everywhere visible. The account which he here gives us of a city whose history has always been full of cosmopolitan interest, from the days of Julian the Apostate to our own, throws an additional charm over her historic chateaux and modern boulevards. Mr. Hamerton is well qualified to write of Paris, for he has known the city intimately for twenty-seven years, and he has been so fortunate as to cover entirely new ground. He sketches the appearance of the city as it was, when the island of Lutetia carried the Roman nucleus of the modern city, and down to the time when a succession of ambitious princes and an energetic republic have made it of all capitals the most beautiful. The illustrations of the book are well chosen, though the details of some of them are almost too shadowy.

## Received.

**REPORT OF THE FIRE DEPARTMENT OF THE CITY OF NEW YORK.** Giving details of Force and Equipment, and Fires of 1884. By the Commissioners.

**NOTES ON THE CHEMISTRY OF IRON.** By Magnus Troilius. New York: John Wiley & Sons.

**THE WOODS OF THE UNITED STATES: with an Account of their Structure, Qualities, and Uses.** By C. S. Sargent. New York: D. Appleton & Co.

**THE NAUTICAL ALMANAC AND TIME TABLES, 1886.** An abridgment, with list of United States Lighthouses. New York: John Bliss & Co.

**HEADS AND FACES, AND HOW TO STUDY THEM.** By Nelson Sizer and H. S. Drayton. New York: Fowler & Wells Co.

**THE PHYSICIAN'S VISITING LIST FOR 1886.** A Convenient Pocket Book. Philadelphia: P. Blakiston, Son & Co.

## Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Pattern Letters (metallic) to print on patterns of castings. H. W. Knight, Seneca Falls, N. Y.

Gardner & Miller's Patent Belt Clamps, 8 sizes. Billings & Spencer Co., Hartford, Conn.

Applegate (burglar) Invis. Elct. Matting. 1512 Chest., Phila.

Curtis Pressure Regulator for Steam Heating Apparatus, Waterworks, etc. Curtis Regulator Works, Boston, Mass.

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Wanted.—Patented articles to manufacture and introduce. Address "B," Box 88, Newark, N. J.

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Grimshaw.—Steam Engine Catechism. A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 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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Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

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Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Send for descriptive circular on lubrication. Charles H. Bealy & Co., North American Agents for Reiser's Celebrated Solid Oil, 175 & 177 Lake St., Chicago, Ill.

Curtis Pressure Regulator and Steam Trap. See p. 222.

Keystone Steam Driller for all kinds of artesian wells. Keystone Driller Co., Limited, Box 32, Fallston, Pa.

Bradley's improved Cushioned Helve Hammer. New design. Sizes from 25 to 500 lb. Bradley & Co., Syracuse, N. Y.

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

Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 226.

Blake's Belt Studs. The strongest and best fastening for Rubber and Leather Belts. Greene, Tweed & Co., N. Y.

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"To Mechanics."—When needing Twist Drills, ask for "Standard," or send for catalogue to Standard Tool Co., Cleveland, O. See page xi, Export Edition.

Steel name stamps, 15 cts. per letter; steel figures, \$1 per set. F. A. Beckmann, 1099 First Ave., Cleveland, O.