

RECENTLY PATENTED INVENTIONS.

Engineering.

BOILER FEEDER.—Augusto S. y Barcon, Corunna, Spain. A float in a regulator connected by a pipe with the boiler at the normal water level actuates a valve to interrupt the connection between the regulator and the boiler, a filling receptacle furnishing the feed water being connected with the boiler and the regulator, while valves in the connecting pipes are adapted to be automatically closed by the reduction of pressure in the filling receptacle and in the regulator when the admission of steam to the latter ceases. The whole apparatus is of simple and durable construction, and is arranged to measure and regulate the quantity of water to be made into steam.

FURNACE TAP.—Edward P. Mathewson, Pueblo, Col. This invention provides an improvement on a former patented invention of the same inventor, the improved tap being readily applicable to any furnace now in use, and being so arranged as to prevent any undue chilling of the matte. The tap has a casing in communication at its rear open end with the interior of the furnace, the front of the casing having an inward extension containing the matte hole, which is arranged below the bottom edge of the water-cooled bosh, a cleaning hole being also located above the extension at the front, and one side of the casing being formed with a slag hole.

STUFFING BOX.—George H. Hitchcock, Danville, Ill. The steam pressure is, according to this invention, made to insure a steam-tight joint between an adjustable stuffing box and the cylinder head. The piston rod aperture is of greater diameter than the rod, and has a counterbore in the base of which are held two expandable rings of greater internal diameter than the piston rod, and having beveled engaging surfaces, the lower edge of the outer ring being exposed to the steam within the chamber formed by the rings, while the stuffing box is secured to the cylinder head with its lower end closing the upper end of the steam space formed by the rings.

CENTER SEAL OF GAS PURIFIER.—John Hearne, Boston, Mass. This invention provides a simple and easily operated seal which may be made of a capacity to connect with any necessary number of purifiers. It has a gas inlet and outlet arranged in such a manner that the gas may flow unobstructed through the seal, and has a number of supplemental and easily operated valves by which the gas may be directed to any desired number of purifiers, or may be cut off from one or all of them without interfering with its flow through the seal, enabling the operation of purifying to be carried on through some of the purifiers when the others may be out of repair or unfit for use.

Electrical.

ARMATURE.—Joseph J. Smith and George W. Finklader, Jamaica, N. Y. A central ring has radially extending arms carrying circumferential bands, one of the bands having an end flange, while a series of removable bobbins is held between the arms and within the band, the bobbins having their feet dovetailed into the ring. Revolvable washers are pivoted on the ring to overlap the feet of the bobbins, the washers having one flat edge and being secured by a fastening device. A cheap and simple form of armature is thus formed, the bobbins being easily removable and each carrying a coil, the several coils being readily connected and disconnected, so that in case one is burned out it may be easily removed and another inserted in its place.

Railway Appliances.

SWITCH MANIPULATING DEVICE.—Daniel L. Boland, New York City. This device is especially adapted for use upon street car tracks, and is to be operated from the car before it reaches the switch, being also capable of manipulation by a rapidly moving train some distance from the switch. Levers located beneath the car are adapted to depress hinged platforms between the tracks, each platform being connected by a link with a lever attached to a shaft connected with a switch lever, by means of which the switch may be thrown in either direction in advance of the car.

Mechanical.

WRENCH.—Frederick S. Seymour, Lake Geneva, Wis. This wrench comprises two jaws having a hinged connection, one jaw overlapping the other and one overlapping end having a cylindrical surface, a cam pivoted upon one jaw engaging the overlapping cylindrical surface of the other jaw, a handle being connected with the cam. The two jaws are approximately L-shaped, the cam engaging the rear member of the movable jaw to swing it on its pivot, so that the wrench may be quickly applied to a nut of any size.

NUT LOCK.—Robert Holmes, Canon City, Col. Two sleeve nuts of equal diameter and externally threaded left handed have internal right hand threads to engage the same bolt head, there being a squared reduction on each end of the nuts to fit the same socket wrench, while two similar jam nuts, hexagonal externally, are internally threaded to fit on the sleeve nut threads, and ratchet teeth in a continuous circle are formed on an end face of each jam nut. The improvement is applicable to lock nuts on all kinds of machinery, and may be easily adjusted to lock or release the nut.

PRINTING PRESS.—Oliver S. Bowman, Salt Lake City, Utah Ter. This is a job press designed to give a direct and even impression without hinge motion, and provided with a simple and effective inking device, and a quick and reliable means of feeding. Means are also provided to facilitate "making ready" in a short time, and the printed sheets are delivered by grippers upon a table at the rear of the press.

Agricultural.

SEED PLANTER AND FERTILIZER DISTRIBUTOR.—Charles R. Reid, Heidelberg, Miss. This is a machine in which the plow may be wholly or partly

lifted from the ground without interfering with the planting or distributing mechanism, which is driven from the main supporting wheel. The hopper and feed wheel are especially adapted for planting cotton or like seed and for distributing fertilizer, with a continuous delivery, and the seed box and driving mechanism are spring supported. Different styles of hopper may be quickly and easily connected with or detached from the spring carriage. The machine is inexpensive to manufacture and is designed to work well on ground of any character.

WEEDER AND CULTIVATOR.—Charles C. Platt, Waverly, Kansas. A machine especially adapted for working listed corn has been designed by this inventor, the runners of which are readily adjustable toward and from one another, while the cultivators are independently adjustable vertically and laterally, the frame carrying the cultivators being also readily raised and lowered. The weeders consist of two blades at each side of the machine, one blade shorter than the other, all being rearwardly inclined, but the longer one having a downward and the shorter an upward inclination, to cut the weeds from the tops and the sides of the ridges. One set of cultivators is designed to operate upon the ridges while another set loosens the ground at each side of the row of corn and within the space between the runners, the plants being protected by shields.

THRASHING MACHINE DEVICE.—George W. Rucker, Belle Plaine, Iowa. This is a light and simple feeder attachment which can be folded over upon the thrasher when not in use without removing a belt. A conveyor is located beneath the delivery end of a series of carrying belts, a knife-carrying drum revolving above, while a series of stationary knives is located in the path of revolution of the drum, there being stripping or cleaning devices for the belts and knives. The feeder is designed to deliver any kind of grain fed to it, and cut both the bundles and the grain, the latter being passed to the thrasher without loss.

ANIMAL SHEARS.—Charles and Harry Burgon, Sheffield, England. This invention relates to improvements in sheep-shearing machines formerly patented by the same inventors, and provides a more efficient and durable anti-friction bearing as a substitute for the ball bearings heretofore used about the main pivotal axis of the cutter-driving lever, providing also means for adjusting the pressure of the top cutters upon the comb, applied to act directly upon the cutter-driving lever through the medium of the anti-friction bearing.

Miscellaneous.

LADDER.—John Splann, Athens, Pa. This ladder may be conveniently used as an extension ladder, a step ladder or a horse to support a staging, being quickly convertible from one kind of ladder to another, and being cheap, strong and durable. It comprises two sections, the upper section sliding between the side rails of the lower section, and each section carrying a windlass, the cable connecting which is passed over guide pulleys on the lower and upper portions of the lower and upper ladders, and the upper section being raised by winding the cable upon the windlass.

FENCE.—John S. Hamilton, Marysville, Ohio. This is virtually a metal fence in which each post is anchored by a base block below the surface of the ground. Each post is formed of a strip of metal bent into strap form, making a pocket at the bottom to receive the base block, the parallel uprights of the posts being stiffened by spacing pieces and tension arms for the stretchers. The tension arms have notches to engage the loops of wire stretchers.

HOLDER FOR BOUQUETS, ETC.—Herman C. Wiedenmann, Philadelphia, Pa. This holder comprises a clasp having a body with an opening on one side, integral arms extending from the sides of the opening, and an adjustable fastening device to affix the position of the arms and fasten the clasp to a support, a second pair of arms forming an open loop to receive and support an article. The holder is adapted to support bouquets, flag sticks, parasols and other light articles, and may be easily attached to the frame or handle bar of a bicycle or other support.

NAPKIN RING.—Ernest Drevet, New York City. Two curved bands overlapped at their ends, which are connected by pivots, carry a clasp pivoted to one of the bands. The ring may be made up in many pretty designs, and may be opened wide or only partially opened to receive the napkin. It is also adapted to serve as a hook to suspend the napkin from the collar to protect the bosom.

ARM REST.—Charles S. Rodgers and Charles E. Schudy, Maniton, Col. This rest has on one of its faces a clamping plate, between which and the body of the rest the body of a book may be inserted and held, the clamping being pivoted so that it may be turned longitudinally or transversely on the rest. The rest may be held in firm position even when used in connection with the last or first leaf of a book.

HAME TUG.—John C. Anderson, New Windsor, Ill. (deceased, Arthur R. Anderson, administrator.) This tug is formed of a single looped piece, the rear end of one side made in prongs, the other arm extending between the prongs to their rear ends, while the ends of the prongs have eyes to receive the pintle or pin. The device is light and cheap, makes the joint in the right place for easy action and has very little friction on the staple with which it connects.

ROACH TRAP.—Charles F. Kuntz, St. Louis, Mo. This trap comprises a casing having inclined passageways opening at its sides and near the bottom, the ways leading to an opening in the top of the trap, a stand and bait box being arranged beneath the opening, while inclined flanges within the trap project downward, there being a lid in the bottom of the trap. The trap is cheap and easily cleaned, and when a roach or other bug is in it he cannot get out.

Designs.

HARDWARE ORNAMENTATION.—Leopold Kahn, New York City. This is a band-like metal open-work design, with parallel braid-like borders be-

tween which are fern-like figures formed in scrolls, the body portion of the metal swelling outward slightly between the borders.

WATCH CHARM.—Andrew Mulcahy, Forsyth, Ga. This charm is in the form of a star, on one side of which is a central figure representing the Western Hemisphere on a disk simulating the globe, while on the other side is a representation of the head of Columbus.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

PHOTOGRAPHY ANNUAL FOR 1893. Edited by Henry Sturmev. 448 illustrations, numerous full page plates, tables. 1893. London: Niffe & Son. 8vo. Pp. cxc, 790. Price \$1.

This annual gives a clear view of the actual progress of the science for the year. The editorial portion of the work is valuable, many of the latest discoveries in relation to developers, etc., being given. For a number of years this annual has illustrated and described the novelties brought out by the photographic houses both at home and abroad. The plates this year are very fine.

THE GREAT BARRIER REEF OF AUSTRALIA. Its products and potentialities. By W. Saville-Kent. London: W. H. Allen & Co., Limited. Pp. xvii, 387. Price \$33.

This superb work is devoted to the life of the Australian reef, its industries, processes of its formation, and similar topics. In the elegance of printing, in its profuse illustrations, and the high character of the same, it is almost unique. The monetary importance of the reef area is indicated by the fact that about \$500,000 worth of raw material taken from the reef is annually exported from Queensland. It is considered one of the wonders of the universe. The illustrations of the book are remarkable in effectiveness. They include 48 photo-mezzotype plates, illustrating corals, scenery, pearls, mother-of-pearl shells, fishes found about the reef, etc., the whole including many subjects. A considerable portion is devoted to the Beche-de-Mer fisheries conducted for the Chinese market. Besides the above beautiful plates, 16 superbly executed chromoplates are given showing anemones, corals, and other examples of the reef life. The text is exceedingly interesting. It is not a dry description of the place by any means, but tells the whole story of the reef and reads like many places as interestingly and graphically as any book of travel. A very full index is provided. It has been regretted that the work is absolutely undated, thus impairing its value as a reference in some cases which may arise regarding priority of description of similar points. The work possesses the feature of interesting the layman as well as the naturalist, appealing to the artistic and literary instinct as well as to the biological faculties.

DIE DEFINITIONEN UND FUNDAMENTALSATZE DER THEORIE DES GLEICHGEWICHTES SCHWIMMENDER KOERPER. By Professor Victor Lutschaunig. 1893. Trieste: F. H. Schimpff. 66 pages, 10 plates.

This little volume treats on the stability of floating bodies and forms a critical review of the at present accepted theory of the stability of marine vessels.

PIETRO GHSLERI. By F. Marion Crawford. 1893. New York and London: Macmillan & Co. Pp. 429. Price \$1.

A first-class psychological novel. The plot and the unfolding of characters are somewhat after the manner of Dr. Hammond. In successive novel Crawford's power of portraying the subtleties of character increases, and he now ranks with Bourget in his grasp of character and falls little below Zola. The treatment of the poisoning episode is masterly and the whole novel shows that the *fin de siècle* writers must bring to their aid the knowledge of both the doctor and the lawyer if they wish to hold their readers.

PRACTICAL DESIGNING. A hand book on the preparation of working drawings. Edited by Gleeson White. Contributors: Alexander Millar, Arthur Silver, Wilton P. Rix, Owen Carter, R. L. B. Rathbone, Selwyn Image, H. Orrinsmith, George C. Hainte. 1893. London and New York: George Bell & Sons. Pp. viii, 327. Price \$2.50. No index.

This very pretty work, well within the aspects of the present day, is really a collection of eleven monographs, on such subjects as carpet designing, pottery, metal work, bookbinding, and wall papers, each monograph by a recognized authority. Profuse illustrations are given to elucidate the text. It certainly seems as if the subjects represented by eleven typical classes of designing cover the subject pretty thoroughly. The absence of an index is to be regretted.

SOME HINTS ON LEARNING TO DRAW. By G. W. Caldwell Hutchinson, Art Master, Clifton College. 1893. London and New York: Macmillan & Co. Pp. xii, 199. Price \$2.25.

It seems as though too much praise can hardly be awarded to this book and to the methods of treatment adopted in it. It is emphatically a book of drawing written up to the present date, characterized by the use of mathematical perspective combined with the most modern methods and theories. When it is stated that among the illustrators no less than 17 eminent artists are represented, and that the work of these artists represents but a minor portion of the illustrations, some idea of its character may be gathered.

DIE DYNAMOELEKTRISCHEN MASCHINEN. Ihre Geschichte, Grundlagen, Construction und Anwendungen. Sechste ganzlich neubearbeitete Auflage. Von Dr. F. Auerbach, Professor an der Universität Jena. Pp. xvi, 288. No. index. Price \$1.

DIE ELEKTRISCHEN LEITUNGEN UND IHRE ANLAGE FÜR ALLE ZWECKE DER PRAXIS. Von J. Zacharias. Pp. xvi, 247. Price \$1.

THE COLUMBUS GALLERY. Historical description. By Nestor Ponce de Leon. Illustrated. 1893. New York: N. Ponce de Leon. Pp. iv, 178.

This work gives reproductions of famous portraits and pictures connected with the great discoverer, with descriptive text. The latter not only gives an account of the 95 cuts, but includes notes upon many other pictures not illustrated. Thus a considerable value attaches to the book as a sort of catalogue of Columbus pictures in all parts of the world. Otherwise it is of high interest as being written in popular and anecdotal style. It should receive adequate welcome in these days of Columbian celebration.

THE METASPERMÆ OF THE MINNESOTA VALLEY. A list of the higher seed-producing plants indigenous to the drainage basin of the Minnesota River. By Conway Macmillan. Reports of the geological and natural history survey of Minnesota. December 29, 1892. Minneapolis, Minn. Pp. xiii, 826.

REPORTS OF THE UNITED STATES COMMISSIONERS TO THE UNIVERSAL EXPOSITION OF 1889 AT PARIS. Volume V. Agriculture. Edited by C. V. Riley, Ph.D. 1891. Washington: Department of Agriculture. Government Printing Office. 8vo. Pp. 935, 219 illustrations, 77 plates.

The exhibit made by the United States at Paris was very fine and the present volume, which contains a full description of the agricultural exhibits both of the United States and foreign countries, reflects great credit upon both the editor and the contributors. The work includes papers relating to vine cultivation, wine making, useful and injurious insects, including the dreaded phylloxera, field trials of implements, agricultural stations, food adulteration, the cultivation of textile fibers, vegetable oils, etc. The last chapter contains an excellent report by A. C. True, entitled "A Report on the History and Present Condition of Agricultural Science and Education in the United States."

Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & CO., 361 Broadway, New York.

SCIENTIFIC AMERICAN BUILDING EDITION.

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2. Plate in colors showing the residence of Wm. H. Fitzgerald at Bridgeport, Conn., erected at a cost of \$6,000 complete. Two perspective views and floor plans. J. W. Northrop, Esq., architect, Bridgeport, Conn. An attractive design.
3. A dwelling recently erected at Chester Hill, N. Y. Perspective view and floor plans. A model design. Cost \$6,850 complete. Messrs. Munn & Co., New York City.
4. A Colonial modern dwelling recently erected at Montclair, N. J., at a cost of \$5,500 complete. Floor plans, two perspective views, etc. Messrs. Munn & Co., architects, New York. An excellent design.
5. Engraving and floor plans of two designs of cottages recently erected for Mr. D. H. McKay, at Boston, Mass., at a cost of about \$1,600. A. W. Pease, architect, Boston, Mass.
6. Floor plans and engravings of a stone residence erected for George W. Childs, Esq., at St. David, Pa. A very attractive design. Cost \$7,600 complete. Messrs. F. L. & W. L. Price, architects, Philadelphia, Pa.
7. An old colonial style dwelling at Belle Haven, Conn. Floor plans and perspective elevations. A picturesque design.
8. A residence at Belle Haven, Conn. A unique design. Perspective elevation and floor plans. Messrs. Boring, Tilton & Mellin, architects, New York City.
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