

RECENTLY PATENTED INVENTIONS.

Mechanical.

WRENCH.—John H. Gregory, Ione, Cal. This is an improvement in wrenches having a fixed jaw and another jaw to slide on the toothed shank, a pivoted cam lever locking the wrench to any desired adjustment. The outer jaw has a triangular hook-like shape, while the inner jaw is somewhat curved, both jaws having toothed surfaces, and the outward movement of the sliding jaw is controlled by a spring secured to the forward edge of the sliding bar, the spring holding the jaw in engagement with the pipe or other object to which the wrench is applied, an inclined wall or shoulder also supporting the sliding jaw when the latter is pressed down against it.

GUIDE HOLDER FOR STAMP MILLS.

Peter C. Robertson, Phillipsburg, Montana. In mills for crushing ores the vertically reciprocating stamps are guided by holders or boxes secured to the rails of the frame of the battery of stamps, and this invention provides for a series of guides being conveniently applied to a series of stamps to hold them so that they will reciprocate easily, without undue friction. They are so arranged that any guide and its holder may be easily removed when necessary, or tightened to force the back and front portions of the boxes to an even pressure. After the guides and holders are once in place, any single holder and guide may be conveniently removed when desired.

BUILDERS' SCAFFOLD.—Louis Korn, New York City. This device consists of a bracket having a body portion to rest on a window sill, there being at one end a lateral projection and a pivoted depending arm, and at the other end a pivoted vertical post with a hook or brace to detachably engage the body portion. A diagonal brace is pivotally secured to the under side of the body, its inner end designed to rest against a building wall, and a short slotted brace pivotally connects the diagonal brace with the body. The apparatus may be folded to be conveniently portable, and affords a scaffold especially applicable for building a blank wall, giving a secure support for the workmen.

LUBRICATOR.—Henry E. Lejeune, Thibodeaux, La. A device more especially designed for use on the water cylinders of vacuum or other pumps to automatically oil the cylinders is provided by this invention. The invention consists of a lubricant reservoir having at its lower end outlets leading to the ends of the cylinder to be oiled, glass tubes connected with the outlets leading to the cylinder ends, while a valved water chamber is held on the under side of the reservoir. The amount of oil flowing to the ends of the cylinder can be plainly seen and readily regulated.

SKIVING MACHINE.—Herbert Master-son, Jefferson City, Mo. A reciprocating slide moves above a vertical open topped holder, there being a knife beneath the slide and a carrying form held in it, while vertically movable brads in the form engage the pieces of leather in the holder. The machine is designed to skive the shanks, counters, and other pieces of boots and shoes, a number of the pieces to be skived being placed in the holder, and the machine then working positively to automatically skive them one by one and dropping them out of the machine at the rear.

JACQUARD CARD WIRE.—Alfred and Thomas W. Bentley, Paterson, N. J. A wire extending between adjacent cards is formed with flattened parts, tying strings engaging the wires at such portions, and also the laces connecting the cards with each other. A lateral shifting of the wire is prevented, the ends always projecting like distances from the ends of the cards for suspending the latter in the usual way.

Miscellaneous.

CALENDAR.—Joseph Wallin, Boston, Mass. Three dials having ratchet wheels expose indications on their faces, a pull bar in the case engaging two ratchet wheels to move two of the dials, and rotate the other dial and its ratchet wheel, when laterally swung below the lower end of the case and then reciprocated. The invention also embraces other novel features, the calendar being adapted for perpetual use, indicating the name and date of days in a week and month in chronological order.

SAFETY DEVICE FOR ELEVATORS.—Louis W. Butler, Brooklyn, N. Y. This is a simple and easily applied attachment for use in connection with any form of elevator valve rope, utilizing electricity to move out of the path of the valve rope a keeper capable of preventing movement of the rope. The keeper is carried from the path of the valve rope the moment the doors of the elevator shaft are closed, and when any door is opened the keeper is drawn into the path of the rope, preventing the rope from being operated to start the car until the door has been closed.

TO REMOVE PAINT OR VARNISH.—George L. Ball, Allegheny, Pa. This is a composition to be applied by a brush upon varnished or painted surfaces to remove a former coating, speedily rendering hard paint or varnish soft and detaching it from the wood or metal on which it had dried. The composition does not discolor the surface to which it is applied, which can be varnished upon as soon as dry.

EXTENSION TABLE.—Johann F. Wiggers, Hanover, Germany. The extensible parts of this table may be collapsed or withdrawn and firmly erected without the aid of screws, wedges, etc. The main table has a central cross piece provided with vertically spaced lateral projections, fixed guides and supports leading to the projections from the end pieces of the main table frame, the guides being inclined, while extension leaves having folding legs are guided by the supports and rest thereon when in the inner positions.

SLATE ATTACHMENT.—Maud Wyman, San Francisco, Cal. Lettered bands, according to this invention, run beneath the slate and under slots in its frame, and also over a part of the frame, so that any letter or character on the band may be disclosed. The bands pass over spools on a fixed shaft, each spool having a projecting milled edge, by which it may be

rotated and the band drawn along to disclose a desired letter or character. A tension spring counteracts shrinking and stretching of the bands, and assists to hold them in proper position.

BUGGY TOP.—David Shivell, Arlington, Ind. This is an improved top of simple construction, provided with movable curtains, arranged to be conveniently operated to close the sides. Rods are curved to conform to the shape of the top part of the bows, and curtains fitted to slide at their upper ends on these rods are fastened at their lower ends to the sides of the buggy, the side curtains when not in use resting between the cover and lining. The curtains readily fold with the bows when the top folds, whether they are in a lower or upper position.

VEHICLE BODY SHIFTING DEVICE.—Charles H. Mitchell, Oxford, Ohio. The front or rear portion of a vehicle body is designed to be shifted laterally upon the axle by means of this improvement. The invention also provides a simple device for connecting the body with the front axle of a thrashing machine, separator, steam stacker, or other agricultural implement driven by steam, by which the implement may be adjusted as desired with relation to the driving pulley of the engine.

MANURE DISTRIBUTOR.—Robert J. Morris and Robert L. Wiggins, Alexanderville, Ga. This is a machine for hauling and drilling in furrows cotton seed compost, or stable manure in the rough or pulverized state, and also guano or commercial fertilizers at the same time. The machine is designed to supply the place of a cart for transporting it to the field, and also act as a distributor to place the manure in a furrow without dropping it in heaps, and without transfer of bulk from one vehicle to another.

COCKLE SEPARATOR.—Andrew G. Miller, Estill Springs, Tenn. This is a machine to separate cockle from wheat, oats, rye, etc., the material being fed into a vibrator box in which travels a separator formed of metallic plates covered with depressions, the plates being secured at opposite edges to endless leather belts. The wheat or other grain becomes seated in the depressions and is carried to the lower end of the separator while the cockle is carried backward over the receiving end of the box.

STAND FOR BICYCLES.—Herman C. Wiedenmann, Philadelphia, Pa. This is a simple and durable construction readily applied to any bicycle to support it upright and hold the wheels above the ground. The front wheel is engaged by a frame consisting of two standards connected with each other at the top and bottom and formed with forks to receive the hub of the wheel, a transversely adjustable rest on each of the standards engaging the fork, while an independent frame also engages the hub of the rear wheel. When the bicycle is in position on the stand both wheels can be revolved, rendering it convenient to do any desired cleaning or repairing.

CHICKEN BROODER.—Earl Barney, Schenectady, N. Y. This is an improvement on a formerly patented invention of the same inventor, the brooder being heated by lamps and so constructed that none of the vitiated air in the lamp room can get into the brooder. The latter compartment is made evenly warm and well ventilated, and connected with it is a light and airy exercising room for the chickens, to which easy access may be had from the brooder proper.

MOLE TRAP.—George Nelson, Livingston, Texas. This trap has a vertically sliding spring-pressed plunger, carrying impaling devices, a shoulder on the plunger being engaged by a stationary arm of the frame, while a pivoted lever connected with a trigger is adapted to disengage the shoulder. The trap is simple and cheaply made, and easily tripped to transfix a mole or other animal.

DESIGN FOR A FAN.—Manuel Caranza, Havana, Cuba. This design represents the vessels of Columbus' fleet on the discovery voyage, one of the vessels being close at hand and the others at a distance on an expanse of water on the ribs of the fan.

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.

DIE NEUEREN SCHNELLDAMPFER DER HANDELS- UND KRIEGSMARINE. By Carl Busley, Kiel and Leipzig, Germany: Lipsius & Tischer. 1892. 8vo. Pp. 212. 156 illustrations. Price 5 marks.

This work is well worthy of translation. Though we have two new works on steam navigation, "Ocean Steamships" and the "Ocean Ferry," neither gives the technical details, which are of great interest to persons of a scientific turn of mind. All of the various stages in the evolution of the modern express steamer are given, from the Viking boat of 800 A. D. down to such magnificent floating hotels as the *Furst Bismarck*. The elevations of the various steamers give a good idea of the various changes. A number of the illustrations show the extremely florid decorations of the German steamers, which are usually in very bad taste. Considerable attention is given to three-screw vessels. This chapter is, without doubt, the most interesting section of the book to the student of marine engineering. The book is well illustrated, and it is unfortunate we have not an equivalent work in the English language.

ANNUAL REPORT OF THE CHIEF OF ENGINEERS, UNITED STATES ARMY. 1892. 8vo. Pp. 473.

There is an amount of useful as well as curious information embalmed in the government publications which are seldom read. The present work is largely devoted to an account of the various river and harbor improvements which are conducted by this department. The most interesting portion of the book is that relating to fortifications, but is unfortunately very brief. It

is to be hoped that the time will come when the government will devote more attention to our defenseless coasts than to the improvement of fourth rate rivers.

THE COMPASS. Edited by William Cox. Monthly. New York: Keuffel & Esser Co., publishers. Price \$1 per year.

This new publication is worthy of the support of all engineers, surveyors and draughtsmen, as it is devoted entirely to their interests. Though the publication is controlled by a large supply house of instruments, etc., for engineers and draughtsmen, this fact is kept in the background, and all notices of a business nature are confined to the cover. There seems to be a good opportunity for the publishers to open a column for the use of subscribing draughtsmen out of situations, as they have begun answering queries. The recent number contains timely articles upon the pantographs, eccentrolines, the graphometer, etc. The intelligent draughtsman should not fail to subscribe to this interesting journal.

ORIGINAL PAPERS ON DYNAMO MACHINERY AND ALLIED SUBJECTS. By John Hopkinson. New York: The W. J. Johnston Company, Limited. London: Whittaker & Co. 1893. Pp. 249. No index. Price \$1.

Hopkinson's work on the dynamo during the last decade has been of such value that any publication of his investigations is to be welcomed by all. The present little work contains nine papers, reprinted from proceedings of different societies and elsewhere. It is illustrated, but unfortunately lacks an index. It is pleasing to observe in the author's modest preface the appreciation which he expresses for his American readers.

WHERE IS MY DOG? OR, IS MAN ALONE IMMORTAL? By the Rev. Charles Josiah Adams. New York: Fowler & Wells Company, Publishers. 1892. Pp. 202. Price \$1.

This work is a plea for the higher intelligence of the lower forms of nature, and will, we have no doubt, prove acceptable reading for those interested in the brute creation.

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.

JANUARY, 1893, NUMBER.—(No. 87.)

TABLE OF CONTENTS.

1. Elegant plate in colors, showing a very attractive dwelling at Bridgeport, Conn., erected at a cost of \$15,000 complete. Floor plans and perspective elevations. Joseph W. Northrup, architect, same place.
2. Plate in colors showing a residence at Armory Hill, Springfield, Mass. Two perspective views and floor plans. Mr. Francis R. Allen, architect, Boston, Mass. An excellent design.
3. A cottage at Brookline Hills, Mass., erected at a cost of \$4,825 complete. Perspective views and floor plans. Messrs. Shepley, Rutan & Coolidge, architects, Boston. A picturesque design.
4. A dwelling erected at Holyoke, Mass., at a cost of \$6,500. Floor plans, perspective, etc. Mr. G. P. B. Alderman, architect, same place.
5. A very attractive and convenient stable and carriage house erected at Plainfield, N. J., at a cost of \$1,500 complete. Messrs. Rossiter & Wright, New York, architects.
6. A residence recently erected at Plainfield, N. J., at a cost of \$9,175 complete. A picturesque design. Two perspective elevations and floor plans. Messrs. Rossiter & Wright, architects, New York.
7. An elegant residence recently erected at Malden, Mass., for Mr. B. G. Underwood. Two perspective views and floor plans, together with a view of the Holland stairway. Cost complete about \$11,000. Mr. Frank L. Smith, architect, Boston.
8. A substantial residence at Holyoke, Mass. Perspective elevation and floor plans. Mr. H. H. Gridley, architect, Springfield, Mass. An excellent design.
9. View of the Union Passenger Station, Worcester, Mass.
10. Miscellaneous contents: Combustible fireproofing.—House drainage.—Roofs and roof coverings.—Wall papers.—A plea for the use of white in house painting.—Defective flues.—Antiquity of glue and veneering.—The piping of dwellings.—Collodion glass.—A saw for foot, hand, or steam power, illustrated.—A new court house at Greenville, Miss.—A baluster spindle lathe, illustrated.—Solid partitions.

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.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

MUNN & CO., PUBLISHERS,
361 Broadway, New York.

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 the following week's issue.

Pattern letters and figures may be ordered from the largest variety, of Knight & Son, Seneca Falls, N. Y.

Acme engine, 1 to 5 H. P. See adv. next issue.

"U. S." metal polish. Indianapolis. Samples free.

Fresses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Best balling presses. Ryther Mfg. Co., Watertown, N. Y.

Patent Open-Side Planing and Shaping Machines. Pedrick & Ayer, Philadelphia, Pa.

Aluminum.—For agents or advertisers. Sheet Wire Ingots Novelties. Cincinnati (Ohio) Aluminum Co.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Light and Canal Sts., New York.

Stow flexible shaft. Invented and manufactured by Stow Mfg. Co., Binghamton, N. Y. See adv., page 396.

Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wle, Syracuse, N. Y.

To Let—A suite of desirable offices, adjacent to the Scientific American offices, to let at moderate terms. Apply to Munn & Co., 361 Broadway, New York.

Hydrocarbon Burner (Meyer's patent) for burning crude petroleum under low pressure. See adv. page 381. Standard Oil Fuel Burner Co., Fort Plain, N. Y.

Fine Castings in Brass, Bronze, Composition (Gun Metal), German Silver. Unequaled facilities. Jas. J. McKenna & Bro., 424 and 426 East 23d St., New York.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

Canning machinery outfits complete, oil burners for soldering, air pumps, can wipers, can testers, labeling machines. Presses and dies. Burt Mfg. Co., Rochester, N. Y.

Competent persons who desire agencies for a new popular book of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York.

Pointer on Advertising.—Manufacturers who would advertise for profit in 1893 should write to the Manufacturers' Advertising Bureau and Press Agency, 111 Liberty Street, New York, for points.

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

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. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(4629) R. R. J., Minn., writes: A certain chief engineer of a railroad in this State having occasion to convey water from a river to a tank one mile distant and about 50 feet above the supply, started with a three inch pipe at the river or supply end, continued $\frac{1}{2}$ of the distance and then reduced the pipe to two inches up to $\frac{2}{3}$ of the distance, finished with a one inch pipe and connecting with the tank. Now, the question is, Should he not have placed the small end of the pipe at the pump and the large end at the tank? A. The friction will be the same whichever way the pipe is laid. This does not come under the condition of a gravity supply, in which the largest pipe should be placed next to the source of supply. The arrangement as stated is an engineering absurdity. The friction is greater and the pipe line costs more than if 2 inch pipe were laid the whole distance.

(4630) W. B. P.—Dynamite has been used for blowing out stumps. It requires great care to avoid accidents. Quarter and half pound cartridges are used, with electric fuse and battery.

(4631) W. T. B. asks: Will you kindly advise me if it is possible to study electrical engineering and become an electrician without the aid of a teacher, and if so, what books would you advise me to study? A. You can undoubtedly get a good knowledge of electricity by a course of study without the aid of a teacher, but you would progress faster and with more satisfaction if you study under some practical person who is able to show you exactly how the different operations are carried on. We advise you to begin with "Experimental Science," price \$4. This will give you a general knowledge of physics and a very good idea of elementary electricity. You might then take Ayerton's "Practical Electricity," price \$2.50, and after mastering this book it would be well for you to study Thompson's "Dynamo Electric Machinery," price \$9.

(4632) J. J. M. writes: I am a mechanical engineer. I went on examination as an engineer. One question, with the others, was put to me. It is as follows: Suppose I took charge of a boiler that was running some time, what would be the thickness of the shell of the boiler? The examiner did not say how long the boiler was running. I told him if there was a