

RECENTLY PATENTED INVENTIONS.

Engineering.

WIND JACKET FOR BLAST FURNACES.

—Louis B. Walker and John Murphy, Globe, Arizona. According to this invention a wind jacket surrounds the crucible, there being above the jacket a wind box from which lead tuyeres, while a blast supply pipe is so connected with the wind box that the air will be caused to travel around the crucible in the wind jacket and then pass upward to the wind box and the tuyeres, whereby the blast will be heated previous to entering the wind box and at the same time keep the crucible cool to prevent overheating and save wear and tear on the furnace.

ANGLE PLATE FOR BOILER FRONTS.—George Fox, New York City. This is an improvement in hollow arches or fronts for steam boilers and boiler fire boxes, the hollow water front being constructed, according to this invention, in right-angular form, and arranged to cover a portion of the top of the fire box, and all of its end above the grate, save the door space. With this improved angle front it is also unnecessary to place any mason work between the front and the grate bars or furnace.

Mechanical.

WRENCH.—Herrmann Krebs, San Pedro, Cal. This is an improvement in what are known as alligator wrenches, and is especially adapted as a pipe wrench. The fixed jaw forms a portion of the handle, which has a longitudinal channel and a transverse opening, while the second jaw has an extension turning in a recess in the fixed jaw, whereby the second jaw is fulcrumed, an adjusting screw revolving in the channel of the body having a head entering the opening in the body of the pivoted jaw, the screw being manipulated by an adjusting nut. The tool has but few parts, is strongly made and easily operated.

NUT LOCK.—Henry J. Van Nest, Florence, Col. According to this invention a swinging key is provided with a projecting screw thread section on its face and with an attached branch spring on one side, and also with a lug adapted to enter a hole in the nut to which it is applied, to prevent or lock a nut from unscrewing on its screw bolt, stud or rod, by friction against or biting into the thread, freely allowing the nut to be turned in the other direction to screw it up.

TENSION DEVICE FOR SPINNING FRAMES.—Robert Atherton, Paterson, N. J. This is an attachment whereby the tension between the drum and spindles is automatically adjusted, and changes in the length of the spindle driving bands is instantly compensated for. It also provides reliable means for giving a uniform speed to series of spindles on the spinning frame, avoiding excessive tension in the driving belts, and reducing to a minimum the friction of the spindles in their supporting bolsters.

Agricultural.

GRAIN SEPARATOR.—Joseph H. Cretzer, Newcomerstown, Ohio. This is an improvement upon a formerly patented invention of the same inventor, providing guides for the driving rods or pitmen of the screen, in the location of the gearing, the shape of the valves in the various flues or ducts of the machine, and in the construction of the deflector carried by the machine, the deflector being made in sections, one section having yielding or adjustable connection with the other. The construction of an upper air flue, directing air above the screen, is such as to give the machine power, by condensation and pressure, to work with uniformity and separate any kind of grain or seed, whether light or heavy.

CHURN.—James P. Bolding, Forney, Texas. This churn comprises a platform carried by a post which may be turned, there being on the platform a vessel in which is a dasher turned by a shaft on which is wound a band, a lever being connected at opposite sides of its fulcrum with the inclined ends of the band. By the operator swinging the lever forward and backward rotary motion is given to the shaft, turning the dasher, by which the churning is quickly effected.

SUGAR CANE TRANSFERRING DEVICE.—Christian D. Armstrong, St. Bernard, La. To conveniently and easily transfer the cane from the field wagons to the cars running to the mill, this inventor has devised a platform with flanged extension pivoted to a post, a shaft above the platform carrying drums with ropes connecting with the side of the platform opposite the extension, while a hoisting drum on one end of the shaft is connected by a rope with a draught beam. The platform normally rests on the ground, so that field wagons may drive on it to dump the cane.

ELEVATOR.—William H. McCoy, Los Angeles, Cal. This is a vacuum elevator, more especially designed to raise water for irrigating or other purposes. It has cylindrical water receptacles connected with a water supply, a steam cylinder connected with the receptacles, with a piston admitting steam alternately, and pipes connecting the receptacles with the ends of the steam cylinder, while the valves controlling the admission of water to the pipes are controlled by the rise and fall of the water in the receptacles, one receptacle being filled while the other discharges, and vacuums being alternately formed after the water is discharged to draw a new supply into each receptacle.

CAMERA SHUTTER.—William J. McCollom, Swaledale, Iowa. This is a simple and inexpensive shutter to be used with an ordinary camera. It is arranged to close from around the lens tube toward the center and open in the reverse direction, thus preserving the circular shape of the lens opening and preventing the light from striking unevenly on the sensitive plate. It has but few moving parts, moving with but little friction, the parts being counterbalanced to be operated with great facility, and pneumatic means being provided for opening and closing the shutter.

CONDENSER AND DRIP FOR GAS SERVICE PIPES.—Albert H. Gindele, Jersey City, N. J. Between the gas meter and the service pipe is a condenser which has spaced baffle plates projecting from opposite

sides, and has its upper end connected with the meter pipe, while a fitting secured to the service pipe and to the lower end of the condenser is provided with a drip chamber in its lower portion. The device is designed to arrest the water of condensation that may be in illuminating gas carried into house service pipes, and prevent the deposition of condensed water in the meter.

DATING AND STAMP CANCELING MACHINE.—James B. McElrath, Centre, Ala. This is an inexpensive machine, adapted to be operated by foot power or other means, for rapidly dating and canceling postage stamps on letters, cards or packages. The machine will operate on letters or thin cards as effectively as on thicker packages, the mail matter operated upon being discharged from the machine in a box-like space at its rear, to be thence transferred to the assorting tables or mail bags.

PICTURE HANGING DEVICE.—Henry Redmond, New York City. The body of this device consists of a socket attached to one end of a pole, there being at one side arms for manipulating the cord or wire of the picture frame, whereby one, without the assistance of a step ladder, may readily hang a picture or remove one from the wall. The implement may also be employed to readily place in position in the wall a picture hook, or other similar support, or readily remove such support from the wall.

SLIDING WINDOW OR DOOR.—Carl Summermann, Munster, Germany. This invention provides a horizontally sliding and air-tight closing sash, casement or door for windows, etc., which may be readily opened without interfering with curtains or anything on the window sill. The sash is adapted to travel on an essentially horizontal guideway, having portions that deviate vertically and laterally from the main portion of the guideway, whereby the sash is brought tightly against the frame when the door or window is nearly closed.

GATE.—John P. Van Nada, Petersburg, Ind. This is an improvement upon a formerly patented invention for swing gates, whereby levers will be dispensed with, and a simple and economic opening device provided, which may be conveniently operated from either side. In opening or closing the gate the operator is, by this improvement, relieved of considerable of the weight of the gate.

FOLDING CRIB.—Sarah C. Neal, New York City. This crib is composed of a skeleton frame to which is attached a pendent netting of canvas or similar material. The bottom of the body is usually made in two sections connected by a hinge, the bottom of the body being upholstered, or a sectional mattress being employed if desired.

POCKETBOOK FRAME, ETC.—Louis B. Prahar, Brooklyn, N. Y. This inventor has designed an improvement in corners or frames for pocketbooks, book covers, etc., whereby the frame or corner is made in two sections, a body section and a binding section, employing two differently colored metals at a minimum cost, but so that when the frame is in position upon the article it will have the appearance of a one-piece frame.

SCALPEL.—Joshua W. Jones, New York City. In the construction of this implement the blade is so formed that it has a cutting surface at the heel and at the point, in addition to the ordinary cutting surface, the cutting surface at the point being carried a certain distance along the back, and there being no angles in the heel and point cutting surfaces.

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.

HOW TO BECOME A SUCCESSFUL ELECTRICIAN. By T. O'Connor Sloane, Ph.D. New York: N. W. Henley & Co. 1894. Pp. 159. Price \$1.

This work is designed for the numerous class of young men who desire to enter the electrical field, yet who feel unable to take a regular college course. Its object is to indicate a course of study which can be followed by the graduate of the workshop and of the public school, the point being repeatedly made that a little thoroughly learned is worth more than a great deal that is merely skimmed over. Mathematics, physics, chemistry, mechanical engineering, and drawing, each receive a chapter, in which the minimum amount that should be well learned is given, and the advisability of learning more is pointed out. Electrical work at home, factory and shop work for students, and college education are examples of other topics. The different fields of work are depicted, the art of inventing, original investigation and reading are other chapter subjects. The chapters on success and ethics give the broad view of how a professional man should regulate his conduct. The book will be warmly received, and we trust will fill what has long been an urgent need in the literature of the profession.

PHOTOGRAPHISCHES NOTIZ- UND NACHSCHLAGEBUCH FÜR DIE PRAXIS. Von Ludwig David und Charles Scolik. Mit 7 Kunstbeilagen. Vierte umgearbeitete Auflage. Halle a. S.: Druck und Verlag von Wilhelm Knapp. 1894. Pp. xvi, 221.

As we have before had occasion to say in noticing this annual publication, it is distinguished by the most beautiful examples of photographic work, in themselves enough to entitle the volume to especial consideration by the photographer. It contains numerous formulae and pages for notes, and is in very convenient shape. It is an excellent example for its type of publication.

SIMPLE EXPERIMENTS FOR SCIENCE TEACHING. By John A. Bower. London: Society for Promoting Christian Knowledge. New York: E. & J. B. Young. 1894. Pp. 164. No index.

This attractively printed little work is in one respect sad, as it is designed for one of the multifarious sharply defined English courses. It is, in other words, written to

enable students to pass a definite examination. This of course limits the treatment of the subject and to that extent impairs its value from the more enlightened standpoint of general literary value. It is divided into twenty lessons each of ten experiments, and the experiments are so simple as to be easily performed. The author in his efforts to treat the subject familiarly uses terms which would be better excluded. Nothing is gained by calling carbon dioxide chalk gas. Other minor inaccuracies may be noted, such as speaking of the action of a lime kiln or limestone as one of simple ignition, leaving out of account the reducing action of the carbon of the fuel. There is an index of cuts, but no general index.

THE GEM ENCYCLOPEDIA. Chicago: Laird & Lee. Pp. 448. Flexible cloth 25 cents, stiff cloth 50 cents. No index.

The least that can be said of this little compendium is that it gives an immense amount of information for the price and for its size. How any item is to be found without an index is one of the things that surpasses the understanding; the book however may fill many a half hour of leisure time.

THE CENTURY MAGAZINE. November, 1893, to April, 1894. The Century Company, New York.

The semi-annual volumes of this most richly illustrated of magazines are always a delight, for one hardly realizes, in looking over the current numbers, month by month, what a wealth of interesting reading matter, some of it of the highest permanent value, is accumulated, in a form to make an exceedingly attractive addition to any library. Among some of the notable features of the last volume are original papers and pictures of the great Napoleon, Bible Exploration and the Assyrian Monuments, a series of articles on Abraham Lincoln and on James Russell Lowell, Bismarck at Friedrichsruhe, Earthquakes and how to Measure them, Conkling and Garfield, a Pilgrimage to Lourdes, a number of papers on great musicians, and another series on great painters, the illustrations in each case being supplied with a lavish hand, and the printing in the exquisitely beautiful style of the De Vinne Press.

SCIENTIFIC AMERICAN
BUILDING EDITION.

JUNE, 1894.—(No. 104.)

TABLE OF CONTENTS.

1. Elegant plate in colors showing a cottage at Rochelle Park, recently completed for Dr. N. M. Beckwith. Floor plans and two perspective elevations. Cost complete \$11,000. Mr. G. K. Thompson, architect, New York. A very unique design in the old Dutch style of architecture.
2. Plate in colors showing a handsome residence at Evanston, Ill., recently completed for H. D. Cable, Esq. Two perspective views and floor plans. Messrs. Raeder, Coffin & Crocker, architects, Chicago, Ill. An elegant design.
3. An attractive residence at Hartford, Conn., recently completed for Albert S. Cook, Esq. Cost \$7,500 complete. Mr. A. U. Scoville, architect, Hartford, Conn. A pleasing and attractive design, two perspective views and floor plans.
4. Perspective elevations and floor plans of a residence at Portchester, N. Y., recently erected for William Mertz, Esq. The design is severely classic in its treatment and illustrates the American progress in architecture. Mr. Carl Volz, architect, New York.
5. A residence in the colonial style recently erected at Ashbourne, Pa., for Addison Foster, Esq. Perspective elevation and floor plans. Estimated cost \$5,500. Mr. Samuel Milligan, architect, Philadelphia, Pa.
6. A residence at Freeport, L. I., recently completed for J. E. Brown, Esq. Perspective elevations and floor plans. Cost complete \$6,950. An attractive design.
7. The dwelling of J. S. Benner, Esq., at Reading, Pa. Three perspective views and floor plans. Mr. Geo. P. Barber, architect, Knoxville, Tenn.
8. A colonial cottage recently completed for Howell E. Beane, Esq., at Ashbourne, Pa. Cost \$4,000. Perspective elevation and floor plans. Mr. Horace Trumbauer, architect, Philadelphia, Pa.
9. Perspective elevations and floor plans of a cottage recently erected for A. P. Dunn, Esq., at Lowere, N. Y. An elegant and attractive design. Cost complete \$3,800. Mr. R. H. Duryea, architect, New York.
10. California Midwinter Fair. Half page engraving, showing a bird's eye view, the Mechanic Arts Building; also a view of the Fine Arts Building.
11. Miscellaneous Contents: Damage to water pipes by electrolytic action.—Red slate.—Treating stones for construction.—Metal plated lumber.—Damage by lightning.—Gas from wood.—The steel-clad bathtub, illustrated.—An attractive greenhouse, illustrated.—The band saw.—The "Grand" fireplace heater, illustrated.—Fly screens, illustrated.—The Norris patent sash pulley, illustrated.—Glutol.—The Ivessash lock, illustrated.—Interior finish of the home.—The Peerless steam and hot water heater, illustrated.—Reproducing architects' drawings.—Corright metal roofing shingles, illustrated.—A fine metalwork arch, illustrated.

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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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.

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

Heading machinery. Trevor Mfg. Co., Lockport, N. Y. Air compressors for every possible duty. Clayton Air Compressor Works, 26 Cortlandt Street, New York.

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

Nickel-in-slot machines perfected and manufactured Electrical supplies, Waite Mfg. Co., Bridgeport, Conn.

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

Centrifugal Pumps for paper and pulp mills. Irrigating and sand pumping plants. Irvin Van Wie, Syracuse, N. Y.

Wanted—2d-hand hand rock drilling machine cheap. Also differential blocks or hoist. Box 124, Montpelier, Vt.

Emerson, Smith & Co., Ltd., Beaver Falls, Pa., will send Sawyer's Hand Book on Circulars and Band Saws free to any address.

Split Pulleys at Low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

The Carter Pressure Water Filter and Purifier, for hotels, factories, etc. See illustrated adv., page 335. Field Force Pump Co., Lockport, 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.

Patent Electric Vise. What is claimed, is time saving. No turning of handle to bring jaws to the work, simply one sliding movement. Capital Mach. Tool Co., Auburn, N. Y.

Patent for Sale—Electrically operated mechanism for feeding and watering live stock. Patented May 15, 1894. See Scientific American of June 2, page 341. Address A. C. Winch, Saxtonville, Mass.

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.

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.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

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.

(6071) J. F. F. says: Can you give me a recipe for a hypo-eliminator? I would like something that I would only have to give the negative a few changes of water after using.

A. Peroxide of hydrogen (20 vol.) 1 arm.
Water 5 oz.

After washing the negative well it is immersed for a couple of minutes in the solution and again rinsed in water, when the intensification with silver can be at once proceeded with. 2. Where peroxide of hydrogen is not obtainable the following may be used as a substitute, the solution containing that substance in combination with others:

Barium dioxide 1 oz.
Glacial acetic acid 1 "
Water 4 "

Reduce the barium dioxide to a fine powder and add it gradually to the acid and water, shaking until dissolved. A few minutes' immersion in this solution will effectually remove or destroy the last traces of hypo.

(6072) F. R. S. asks for a process for making benzine or turpentine asphaltum from crude coal tar. A. Benzol or benzine is obtained as one of the products of distillation of coal tar. Benzine is a product of petroleum. Wagner's "Chemical Technology," price \$7.50, describes the process of distilling coal tar in detail, and illustrations of the stills and refining or purifying apparatus are also given. The process is too complicated to describe by letter.

(6073) B. F. D. writes: What means have been employed to demonstrate that the seven colors of the spectrum when united will produce white? A. You will find some very elegant experimental demonstrations of this fact in "Experimental Science," by George M. Hopkins, \$4 by mail.

(6074) F. M. says: Please give a receipt in Notes and Queries for an acid mixture to clean brass gas fixtures, etc. A. The government method prescribed for cleaning brass, and in use at all the United States arsenals, is claimed to be the best in the world. The plan is to make a mixture of 1 part common nitric acid and 1/2 part sulphuric acid, in a stone jar, having also ready a pail of fresh water and a box of sawdust. The articles to be treated are dipped into the acid, then removed into the water, and finally rubbed with sawdust. This immediately changes them to a brilliant color. If the brass has become greasy, it is first dipped in a strong solution of potash and soda in warm water; this cuts the grease, so that the acid has free power to act.

(6075) E. H. B. asks: What is the board measure feet of lumber in a telegraph pole 30 feet long, 8 inches square at one end, and 4x5 inches at the other? Also the later problem: A column of soldiers 25 miles