

## OBITUARY.

Mr. Elbert Perce, a literary gentleman, as well as an inventor, and formerly an esteemed client of ours, died recently at his residence in Brooklyn, aged thirty-seven years. He was well known in literary circles as the author of the "Battle Roll of the Wald," and other works, and he was the inventor of the "magnetic globes," so well and favorably known to educators throughout this and other countries. He was a highly accomplished gentleman, and his amiable character gathered about him a host of warm friends, who will mourn, together with his afflicted family, his untimely end.

## Specimens of Large Belts.

Messrs. Hoyt Brothers of Nos. 28 and 30 Spruce street, New York City, have lately finished two very large belts, a portion of an order for the American Print Works of Fall River, Mass. One is 228 feet long and 38 inches wide, double; the other 107 feet long by 36 inches wide, also double, each about five-eighths of an inch in thickness. Weight of the larger belt 1,998 lbs., and of the smaller one 810 lbs. One hundred and fifty of the choicest "buts" were selected from 3,000 hides, themselves sorted from about 9,000. The leather of these belts is wholly from domestic cattle, and tanned with oak bark only, at the tannery of the company in Cumberland, Md., no extraneous acids or hot liquors being used. At first price the value of the largest belt mentioned would amount to over \$2,800. The material and workmanship are certainly creditable to the manufacturers.

## MANUFACTURING, MINING, AND RAILROAD ITEMS.

**THE SPOTTING.**—The Chief Engineer of the Chicago, Burlington & Quincy Railroad, has invented a machine for "spotting" railroad ties. The spotting is cutting down the end, so that the outer part is a little higher than the inner, so that when the rail is laid it will incline inward. By placing a rail in this position, when the wheels of a car are run over it, the whole face of the rail comes in contact with the face of the wheel—a car wheel is always beveled; this distributes the friction over a greater space and of course reduces the wear. The machine is being made at the Aurora shops. The Aurora Beacon thus describes it: When finished, the machine will come out an engine on the track, run 200 miles a day, to where the track is being laid, or a pile of ties in readiness; the engineer will jump off, disconnect the connecting rods from the drivers, attach them to another wheel, start his machine, and as fast as four men can place ties on the little table, they will be carried by an endless chain under the knives, revolving 1,600 times each minute, and pass off the other side ready for the rails, each one the same in inclination.

It is stated that there are now before the Senate, lying on the table or referred to committees, no less than one hundred and ten bills, asking aid for the Pacific routes or connecting lines in the Territories and Pacific States. In the House there are one hundred and twelve pending. An approximate statement puts the amount of the bonds already asked for at about \$250,000,000, and the land grants at 120,000,000 of acres.

A rigger, aged 85, recently walked from Duxbury to Kingston, Mass., worked hard all day, and in the afternoon rigged the masts and crossed the royal yard of the vessel, working 120 feet above the water. Sam Slick would say he was ratherspry for his age.

One day last week the rollers in the eight-inch mill at J. Painter & Son's works, in West Pittsburgh, Pa., with one heating surface, made twenty-one thousand and forty-seven pounds of three-eighths inch round iron in eight and one-half hours.

**ENORMOUS ROLLS.**—The Birmingham (England) Post describes the casting of a pair of rollers weighing 18 tons each or 36 tons the pair. They are 15 feet 6 inches long and about 36 inches diameter, the largest in the world.

A bar of pure merchantable tin, weighing 85 pounds, has been turned out in San Francisco from ore from a tin mine at Temescal, San Diego county, California.

The works of the Williams Silk Manufacturing Company, at East Bridgeport, Conn., have been sold to a firm who will henceforth use them as a hat factory.

The expressage of a single edge tool manufactory in Waterville, Me., amounted in November to \$54,462.

It is reported that mills for the manufacture of prints are soon to be built at Paducah, Ky.

The Columbia and Augusta Railroad is now completed to Graniteville, on the South Carolina Railroad.

Salem, Mass., isto have a new ship yard and a modern marine ship railway.

## NEW PUBLICATIONS.

## THE MONTHLIES.

The monthlies for February have mostly all come to hand. The ATLANTIC, always good, gives, among other lighter matter, a powerful article on "English Ritualism;" an essay on "The New Education," in which the relative merits of scientific and classical training are discussed, the success and failure of different scientific schools in the United States reviewed, and some valuable suggestions made. An article entitled "Birth of the Solar System," in which an entirely novel and most remarkable cosmical theory, which we think may, and probably will be severely handled by the philosophers, and the second part of the essay on "Consumption in America."

The ELECTRIC has outdone itself in its present issue, and deserves to be ranked at the head of all periodicals of its class published in this country. Its selections are of the highest character from beginning to end.

IN PUNYAM'S MONTHLY, which fully sustains its excellent character in this number, we find a well-written article on "Work, Wages, Combinations," etc., which we consider as weak in logic as strong in rhetoric; "A Sermon at Notre Dame" is a splendid article, in our opinion the best thing in this number.

In the GALAXY the best things are "Coffee and its Adulterations in New York," and "The Grammarless Tongue," in which latter many excellent points are made and some mistakes. The circulation of the "Galaxy" is rapidly going up.

By the way, why do not publishers cut the leaves of their publications? It costs next to nothing to do it with the proper machinery, and it is a real annoyance to perform the cutting by hand. Most certainly if pausing before a news-stand we were about to choose a magazine, we should incline to the ATLANTIC OR GALAXY rather than to one of equal merit with uncut leaves.

**SECRETS OF BEE-KEEPING.** By K. P. Kidder, Practical Apiculturist, Burlington, Vt.

This is the title of very entertaining and instructive little volume of 132 pages. Nothing in the insect world has attracted greater attention from the student of nature than the habits and marvelous instincts, if instincts they are, of the honey bee. The work before us seems to be admirably adapted to the wants of bee-keepers, especially those who have not a large experience to guide them in the care of these diminutive but industrious workers. The price of the work is seventy-five cents, and may be obtained of the author.

**THE AMERICAN YEAR BOOK AND NATIONAL REGISTER FOR 1869.**

Messrs. O. D. Case & Co., Hartford, Conn., proposes soon to publish the

above-named work, which will embrace a great variety of information—astronomical, historical, political, financial, commercial, together with a general view of the United States Government, with educational, religious, and industrial statistics. It is intended to be a permanent work, and will be valuable to every citizen. The work will be sold by traveling agents.

**THE TEXAS ALMANAC FOR 1869, AND EMIGRANT'S GUIDE.** D. Richardson, No. 12 Barclay street, N. Y.

This work contains a great deal of information concerning the climate and resources of Texas—useful to persons who desire to emigrate to that State.

**THE ARCHITECTURAL REVIEW AND BUILDERS' JOURNAL.**

The seventh number of this excellent periodical is at hand. It fully fulfills the promises made in its prospectus, both in character of the matter and typography. Its department of Practical Carpentry and Joinery is alone worth the subscription price to any mechanic; while its general articles on all subjects connected with architecture are carefully and skillfully prepared by a master hand. The high character of its designs is admitted by all who examine them. Published by Claxton, Remsen & Haffelfinger, 819 and 821 Market street, Philadelphia.

## Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, an Extra Charge will be made.

Ask for Olmsted's oiler,—the best made. Sold everywhere.

Woodruff & Beach's, or Corliss 75 to 100-H. P. engine wanted, first-rate order. Address R. W. M., Box 3323, New York.

Wanted—parties to manufacture a small article of wood and wire. A large number wanted. Address E. P. Hall, 2108 Brandywine st., Philadelphia, Pa.

Machinists! Meinhard's improved iron planing machine. For machine, with improvement, inquire at Gould Machine Company, Newark, N. J., or Warehouse, 119 Liberty st., Newark, N. J. Illustrated in Scientific American Vol. XVIII., No. 6, page 81.

A new 16x24 and 10x18 engine for sale low by Albertson & Douglass Machine Co., New London, Conn.

An interest in one of the most valuable patents ever issued will be exchanged for Western or Southern lands. Territory to the amount of \$10,000 has already been sold. Address Dr. Carpenter, Newark, N. J.

Peck's patent drop press. Milo Peck & Co., New Haven, Ct.

The manufacture and introduction of sheet and cast metal small wares is made a specialty by J. H. White, of Newark, N. J.

For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York.

Pocket repeating light, with improved inflammable tape. Send for circular to Repeating Light Company, Springfield, Mass.

An experienced engineer, who for years has been engaged as superintendent and mechanical draftsman in a machine shop, wishes a similar position in some establishment. Good references given. Address Engineer, Postoffice Box 3443, Boston, Mass.

American Needle Company, general needle manufacturers, and dealers in sewing-machine materials. Hackle, gill, comb, card pins, etc., to order. J. W. Bartlett, Depot 569 Broadway, New York.

See A. S. & J. Gear & Co.'s advertisement elsewhere.

For steam pumps and boiler feeders address Cope & Co., No. 118 East 2d st., Cincinnati, Ohio.

Responsible and practical engineers pronounce the Tupper Grate Bar the best in use. Send for a pamphlet. L. B. Tupper, 120 West st., N. Y.

Iron.—W. D. McGowan, iron broker, 73 Water st., Pittsburgh, Pa.

For sale—100-horse beam engine. Also, milling and edging machines. E. Whitney, New Haven, Conn.

Millstone-dressing machine, simple, durable, and effective. Also, Glazier's diamonds, and a large assortment of "Carbon" of all sizes and shapes, for all mechanical purposes, always on hand. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

For solid wrought-iron beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for Lithograph, etc.

N. C. Stiles' pat. punching and drop presses, Middletown, Ct.

Prang's American chromos for sale at all respectable art stores. Catalogues mailed free by L. Prang & Co., Boston.

Winans' boiler powder, N. Y., removes and prevents incrustations without injury or foaming; 12 years in use. Beware of imitations.

The paper that meets the eye of all the leading manufacturers throughout the United States—The Boston Bulletin. \$4 a year.

## Answers to Correspondents.

**CORRESPONDENTS** who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address correspondents by mail.

**SPECIAL NOTE.**—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1.00 a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

J. G., of N. Y., asks "what is the rule in relation to the employment of eccentrics and cranks, a given amount of motion and power being required, which is preferable? and in what cases is one better than the other?" The eccentric is a modification of the crank. A steam engine may have its reciprocating motion converted into rotary by an eccentric instead of a crank, as some foot or treadle lathes are driven; but while the crank, to produce the slight throw required for this purpose, could not be easily attached to the main shaft the eccentric could. Both crank and eccentric are means of transmitting rotary into reciprocating motion and vice versa, and the choice of either of these means is to be governed entirely by the circumstances of the case.

A. R., of D. C.—The sum of the latent and visible heat of steam is found by adding the latent heat 967°5, to the visible heat 212°. It is strictly 1179°5, or in round numbers 1180° as given by Professor Silliman in the lecture referred to.

W. E. B., of Pa.—The circumference of an ellipse is found by adding together its major and minor diameters, dividing by two, and multiplying the quotient by 3.1416. Any of the ordinary text-books on Geometry will serve your purpose.

A. M. W., of Conn.—To make paint dry quick, use a large proportion of Japan varnish in mixing.

D. L. P., of Pa.—To polish raw wood there is nothing better than shellac dissolved in alcohol rubbed in thoroughly with a rag until dry. The solution should be quite thick, as that will save labor.

F. A. C., of N. H.—We think there can be no doubt that the impetus of a shot is greatest at the instant of its leaving the muzzle. If

experiment should prove that its penetration is greater at a distance than near the muzzle, it must be due to other circumstances than its initial velocity.

M. A., of Ky.—All patented methods, the one you refer to among the number, are the exclusive property of the patentee. For a right to use the one of which you speak, address the patentee. Women may produce many useful as well as beautiful articles of household convenience with twigs, dried leaves, pine cones, seeds of vegetables, bark, roots, etc., twine, glue, varnish, a pocket knife, and a pair of scissors. Not a very extensive or expensive stock, but capable of being wrought and combined into very elegant articles. Natural taste and patient application will suggest patterns and insure success.

J. S. M., of Me.—We do not think that a properly tempered band saw is peculiarly liable to break. The fact that they are used for sawing iron would seem to preclude the idea of their easy breaking. There are no patents on the band saw. It is an old device, beyond the reach of patents, except for its adaptation to particular work, or some peculiar arrangements of its accompanying parts.

C. G., of Ohio.—Gum Dextrine or British Gum is the substance used for gumming envelopes and stamps. You can purchase it ready made or can make it yourself, by adding to starch 11-4000 of its own weight of strong nitric acid, diluted with water enough to moisten the starch, drying the mass, by a very mild heat, pulverizing coarsely, and heating in air raised to 160° Fah., pulverizing again finely, sifting, and finally reheating to 228° Fah. This process will give you a fine article. To use it dissolve in water to the proper consistency.

N. C. B., of Canada.—No definite rule can be given for proportioning irons for castings, as the proportions must vary according to their thickness. A thin casting will be very much harder than a thick one of the same composition. Judgment matured by experience must be your guide. The more old iron you mix with the pig the harder your castings will be. For machinery never use less than about twenty-five per cent, nor more than seventy-five per cent of old metal, and between these extremes you will by experiment find the proportion required.

## Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

**PLOWS.**—Joel H. Jones and Henry P. Jones, Herndon, Ga.—This invention comprises several important improvements in the manner of constructing plows, among which may be mentioned a new construction of the swingle-tree, a new form of plow standard, a new method of bracing said standard, a new form of the plow handles, a new mode of fastening the handles, standard, and beam, and a new form and arrangement of harrow to be used in connection with the plow.

**WASH BOILER.**—W. D. Hillis, Elgin, Ill.—This invention relates to that class of wash boilers in which the steam generated in the lower parts of the vessel is made to force a column of hot water up and discharge it upon the clothes, and the present improvement consists in a new form of the piece which is placed in the boiler to confine the steam and direct the upward current of water.

**COMBINED BOOT HEEL AND SPUR.**—C. F. Woodruff, Newbern, Tenn.—This invention is a neat and simple combination of metallic boot heel with sheathed spur, the parts being so constructed and operating that while the spur will always be in place and ready for use, it will not be in the way of injuring the clothing, carpets, etc., or of receiving injury from stones or from the pavement.

**SHEET METAL CAN.**—Conrad Seimel, Greenpoint, N. Y.—This invention relates to new and improved method of fastening the tops and bottoms of sheet metal cans, and it consists in the peculiar construction of the joint for the purpose, so as to form a rigid, firm, and tight connection, at slight expense and with but little labor.

**HORSESHOE.**—H. S. Hiter, Marble Hall, Penn.—This invention relates to that class of horseshoes in which a plain curved plate without calks, is fastened to the hoof, and to this plate the shoe, bearing either sharp or dull calks, is attached by means of screws. This improvement relates to a new device for strengthening the shoe and attaching it to the curved plate more firmly than has been done heretofore.

**GEOGRAPHICAL GAME.**—Levi Branson, Raleigh, N. C.—The object of this invention is to produce an interesting and agreeable game, the successful playing of which shall depend entirely upon the skill of the player, and which cannot be played by any one without his acquiring thereby a vast amount of correct information as to the conformation, extent, population, and resources of the geographical divisions and subdivisions of the earth, or of some particular continent, nation, or territory thereof.

**BRICK MACHINE.**—David Packard, St. Joseph, Mo.—This invention relates to a new and improved machine for molding and pressing bricks, and it consists in a peculiar construction and arrangement of parts.

**BEE HIVE.**—Calvin R. C. Masten and Abram D. Van Vlack, Pleasant Valley, N. Y.—This invention relates to a new and improved bee hive, and it consists in a novel construction and arrangement of the same.

**CULTIVATOR.**—J. H. Coleman, Columbia, Mo.—This invention relates to a new and improved cultivator for plowing or cultivating crops grown in hills or drills, and it consists in a novel construction and arrangement of the plows or shares and manner of applying the same.

**GAS REGULATOR.**—Samuel P. Mervine, Philadelphia, Pa.—This invention relates to a new and improved method of regulating the pressure of gas, and it consists in the arrangement of a float in a gas holder, which float is provided with a hollow perforated valve and certain gas apertures and gas channels.

**BRAKE BLOCK HOLDER.**—Arthur W. Dorr, Lake Valley, Cal.—This invention relates to a new and improved device for securing brake blocks to the brake bars of railroad cars, whereby the blocks are firmly held in position, old ones readily removed, and new ones secured in their place.

**BREECH-LOADING FIREARM.**—Henry Carter and George H. Edwards, Stepney, England.—This invention is chiefly applicable to that class of breech-loading firearms which close with a sliding rotating bolt provided with a projecting hand lever.

**BURGLAR PROOF LOCK.**—G. W. Dana, Racine, Wis.—This invention relates to a burglar proof lock, and is improvement on a lock for which Letters Patent were granted bearing date December 27th, 1859.

**TEA-KETTLE.**—Joseph H. Downing, Healdsburg, Cal.—This invention relates to a new and useful improvement in kettles for boiling water and other liquids, and it consists in attaching to the handle or ball of such kettle, straps or pieces of metal, in such a manner that the lower ends of such pieces will rest on, or nearly on, the cover of the kettle when the balls is in a vertical position, and so that when the ball is turned down the cover can be removed.

**MACHINE FOR GRINDING THE SICKLES OF HARVESTERS.**—Milton Fowks, Leeds, N. Y.—This invention relates to a new machine for sharpening the cutter bars of mowing and reaping machines, and consists in the arrangement of machinery for imparting combined reciprocating and rotary motion to the grindstone, so that it will move along the cutting edges and at the same time sharpen them. The invention consists also in beveling the grinding edge of the stone towards both sides, so that it will at once grind two diverging edges of the sickle. The invention also consists in providing for the vertical adjustment of the stone so that it may be lowered when worn smaller by use.

**STOP-COCK.**—H. P. Kreiner, Berlin, Prussia.—This invention relates to a new manner of making the spigot or stopper of a faucet or tap fit tight in its seat, and consists in making such spigot or stopper of two or more longitudinal pieces or sections, which are pressed against the sides of the enclosing pipe by means of springs interposed between them. By this invention