

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**BOILER FURNACE.**—Thomas J. Grosh, Savanna, Ill. The exterior cylindrical shell of this furnace has an inverted cone-shaped lower end forming a water compartment within which is the fire box, water flues in the inner surface of the sides and top of the shell extending within the combustion chamber, while a sleeve connects the top of the fire box with the removable cover of the shell, and a filling tube extends through the sleeve to deliver fuel to the fire. The water flues have their ends expanded and calked in the top and sides of the fire box, and the boiler is designed to be very effective, while avoiding all possibility of leakage at the tubes.

**VALVE GEAR FOR STEAM ENGINES.**—Thomas M. Pusey, Westchester, Pa. Within a casing mounted to turn and driven from the main driving shaft is a wing mounted to oscillate, and acted on by steam leading to the casing from the steam chest, while springs press on opposite sides of the oscillating wing and a shaft carrying the wing has a crank arm connected with the sliding valve for the inlet ports of the engine. The construction is simple and durable, and the valve is designed to utilize the steam to the fullest advantage.

**VALVE FOR HYDRAULIC MACHINERY,** etc.—John W. Cabot, Boston, Mass. The valve body, according to this improvement, has connected cylinders with an inlet and outlet, and exhaust, in combination with two apertured valve seats, one between the inlet and outlet and the other between the inlet and the exhaust, apertured valves burning on these seats, and so arranged that when one opens the other closes. No gaskets, soft packing rings, etc., are employed in the valve, which is arranged to take up all wear and prevent leakage, so that, without any especial adjustment or attention, the machinery in connection with which it is used will stand motionless at any desired position without requiring additional hydraulic pressure.

**STEAM BOILER AND WATER HEATER.**—Thomas C. Andrews, New York City. This boiler comprises several sections, one on the other, secured together, with a central heat compartment and a hot water chamber around it in each section, all communicating, while there are communicating water return chambers exterior of the hot water chambers. The construction is designed to afford low pressure steam if desired, or hot water, for house warming purposes, in the most efficient manner.

## Railway Appliances.

**CAR COUPLING.**—Arthur F. Nesbit, Milton, Pa. An arm having a projecting lug extends vertically into the link recess of the drawhead and rests against shoulders, while a lever fulcrumed on the drawhead carries the pivot for the upper end of the arm, the lug on the latter engaging the under side of the lever. The device is of simple and durable construction, the coupling taking place automatically as the cars come together, while the uncoupling may be effected either from the side or top of the car.

**CAR COUPLING.**—George S. Gaines, Corona, Ala. This is an improvement on a formerly patented invention of the same inventor, where swinging fenders were used to guide an arrow-head coupling link between the pin and a spring-bearing plate, to hold the link in coupled position. By the improved construction, the fender plate is rigidly held in the drawhead, and the rear end of the link is allowed free lateral play, while the apex or bent edge of the fender is arranged slightly in advance of the pin, and the link head is guided to pass the pin and engage the yielding spring plate.

## Mechanical.

**CARPENTERS' SQUARE.**—Harry M. Stocking and Eugene L. Vroom, Castleton Corners, N. Y. This is a separable square, its arms being readily taken apart to pack the tool in small space, while it is of the exact shape of a one-piece square when its arms are locked in position. The locking mechanism is so located that it is not visible, and cannot interfere in any way with the use of the square, and this mechanism can be operated by a nail, the shank of an awl, etc.

**CAM.**—Giacomo Parcho, Sierra City, Cal. This improvement consists of two cam arms, each having a half hub, one of the arms having a slot extending on both sides of the half hub and adapted to be engaged by a tongue extending to both sides of the half hub of the other cam arm. The cam thus constructed may be conveniently and securely attached to a shaft without disturbing the other cams, or removing the shaft from its bearings.

**GUIDE FOR STAMP MILLS.**—Edmund Major, Terraville, South Dakota. This is an improvement on a formerly patented invention of the same inventor, providing for quickly and conveniently adjusting the several parts to take up wear, and without removing the blocks. The invention consists of a keeper adapted to be fastened to a girt or rail formed with downwardly and outwardly inclined sides, a flange being held adjustably on the keeper.

**BUTTON TURNING MACHINE.**—Martin Woods, Newark, N. J. A hollow drive shaft capable of endwise and rotary movement has at one end an interior beveled surface and is connected at the opposite end with a clutch, a spring bearing at one end on a fixed support and at the other end against the clutch, while a shaft turning in the hollow shaft has at one end a chuck with a conical surface to engage the beveled surface of the hollow shaft, a lever being connected with the clutch, by the manipulation of which the drive shaft is carried into frictional engagement with the chuck. The machine is very simple, works rapidly, and the cutting tool may be conveniently sharpened.

## Agricultural.

**BROADCAST HAND SEEDER.**—Harm H. Franzen, Golden, Ill. The seed is carried in a bag suspended by a strap from the shoulder of the operator, and from one side of the bag at its bottom extends a telescopic sowing spout, in the outermost section of

which are barriers to deflect and scatter the seed as it leaves the spout, there being also in the rear section of the spout a valve to control the quantity of seed delivered. The spout is turned or thrown from side to side to throw out the seed with force, and scatter it over a large area. The spout may be removed when going to or coming from the field, and the whole device takes up but little room.

**ANIMAL HOLDER.**—Oliver M. Kelso, Rock Rapids, Iowa. This is a cheap and convenient device for fastening together the feet of a hog, sheep, calf, or other animal, holding them comfortably and so the animal will not be injured. A bar with reduced rounded portions fits against the legs, and sliding yokes span its reduced portions, the yokes embracing the legs of the animal, here being sliding clamping pieces on the yokes, and fastening devices to secure them in position.

## Miscellaneous.

**KITE.**—John W. Davis, New York City. This is a strong and collapsible kite, which may be folded in small space and carried on shipboard, and to be connected with lines so that it can be steered to carry a life line ashore or to drag a spar, buoy, or other article to the shore. On opposite sides of the center of the kite are secured bridle comprising several cords having their attached ends in alignment, flying lines being secured to the free ends of the bridles, and the kite has cross ribs, with a separate steering line secured to a cross cord connecting two of its projecting ribs.

**STONE SEPARATOR.**—James Cornelius and Edmund R. Collins, Brooklyn, N. Y. This is an improvement in machines for extracting stones from clay, that the clay may be cheaply and easily worked to produce a fine article in the way of porcelain, tile, and similar materials. The clay-feeding machine has a discharging nozzle, in which screens are held and adapted to move transversely, so that one screen follows and replaces another, the screens having inwardly extending stone-removing flanges.

**TICKET PRINTING APPARATUS.**—Albert R. Abbott, Boston, Mass. This is an apparatus designed to print all kinds of tickets, number them consecutively, and count the total of all the tickets issued as well as the total of each especial kind. The apparatus is more especially designed for use in heater ticket offices, on railroads, etc., enabling the operator to at once print and issue a ticket to any point or for any seat, and preserve a complete record of all the tickets thus issued.

**BANK CHECK, ETC.**—William T. Doremus, Flatbush, N. Y. This is an improvement on a formerly issued patent of the same inventor, providing an improved form of bank check, draft, or other like money order, to prevent changing, altering, or raising the instrument, which is made with spaces, numerals, and lines so arranged as to prevent fraud when filled out. A stub-like extension has spaces in each coupon division to contain a separate figure of the series in regular order, facilitating the writing of the signature under proper numerals, and serving as a readily discernible check on the amount.

**TROUSERS HANGER.**—Adolph Feiner, Lexington, Ky. Two body strips are arranged parallel and adapted to slide independently, and removably connected thereto are tabs constructed to received buttons and arranged in pairs, the tabs of each pair having a hinge connection. The device is simple and inexpensive, and can be quickly applied in such manner as to support the trousers to give to them the most desired shape.

**CLOTHES PIN.**—John B. Lockwood, Helmville, Montana. This pin consists of two pivoted members, one end forming a handle and the other a clamping jaw, there being a cam surface on the outer face of one handle section and a latch pivoted to the handle of the opposite section. The pin may be quickly and conveniently locked upon or unlocked from a line by using only one hand.

**CAKE CUTTER.**—Anders A. Soderberg, Boston, Mass. A frame carrying two rollers is designed to be run over the dough of which the cakes are to be made, the rollers being each armed with part cutters, whereby one part of each cake is cut by one roller and the other part by the other roller. The device is designed for both bakers' and family use.

## Designs.

**PATTERNS FOR TEXTILE FIGURES.**—Jean Pierre Gelas, St. Etienne, France, has obtained three patents for designs, of which the leading feature of one is a button-like figure consisting of intersecting band-like figures, each composed of parallel strands, giving a ground work of hatched appearance. Another her design has intersecting right-angled band-like figures, the middle portions being given a twisted columnar appearance, and the background having a wavy surface. In her third design, band-like and strand-like figures are produced in low relief, and are given a broken or plaid-like appearance, serving as a background for the strands and bands.

**ORNAMENTATION OF GLASS.**—William L. Pilkington, St. Helen's, England. In the surface of the glass oblique, parallel V-shaped grooves intersect and divide the surface into rectangular figures, in each of which is a depression, the four walls of the depression converging to a common center.

**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.

**THE AMERICAN GLOSSARY OF ARCHITECTURAL TERMS.** By Geo. O. Gamsey. Chicago, Ill. Large 8vo, cloth. Price \$2.00.

The definitions are concise, and the illustrations are printed on the left hand page and definitions on the right hand page. The work is undated, and we regret to say unpagged, but we learn from the preface that it is the third (1892) edition. The work makes no pretence to being a fine art volume, but is a thoroughly practical work for the

use of students, builders, and architects. On the whole, it bears companion with Parker's Glossary of Architecture.

**THE CELESTIAL PLANISPHERE.** Price \$3.00.

**THE CELESTIAL PLANISPHERE HAND BOOK.** Compiled and edited by Jules A. Cowlas. Chicago: Poole Bros. 1892. Pp. xiv, 110. Price \$2.

It is difficult to imagine how astronomy could be studied under more favorable auspices than with this planisphere and the very elegantly illustrated descriptive hand book accompanying it. The planisphere is of the usual type, except that, a skeleton screen being used, almost the entire sky area is uncovered. This in itself is a distinct advantage. Special scales for measuring polar distances and declinations accompanying the planisphere. The book and planisphere together give an admirable popular presentation of the heavens, and the two used as companions will, we are sure, meet with much appreciation. We feel that they can be warmly recommended to the public who are interested in distant worlds.

**KASMAI IDIOMA. Gramatika uti Nove Prata Kiamso Orba. Da José Guardiola.** Paris: Garnier Hermanos. 1893. Pp. 97.

The above is the title in the new Orba tongue of a little grammar for beginners in Sr. Guardiola's rival to Volapuk. The translation of the above title is "Universal Idiom. Grammar of a new language called Orba. By José Guardiola." The work marks a new attempt to create a universal language for use in commerce and for travelers. The author has not studied Volapuk. He therefore starts upon an unprejudiced basis. He aims at the production of a melodious language, trying to cut out all disagreeable sounds. Twenty-one of our letters suffice for his alphabet. Simplicity has been selected as the author's guiding star. One conjugation, undeclined nouns, the use of prepositions for the oblique cases are characteristic features. Less than three pages comprise the necessary syntax. The text of the book is in Spanish, and the treatment of the subject is remarkable for its scope and style.

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.

FEBRUARY, 1893, NUMBER.—(No. 88.)

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1. Elegant plate in colors, showing a very picturesque dwelling at St. David's, Pa. Floor plans and perspective elevations. An admirable design. Mr. N. Trumbauer, architect, Philadelphia, Pa.
2. Plate in colors showing a residence at Bridgeport, Conn. Two perspective views, one interior view and floor plans. Messrs. Longstaff & Hurd, architects, Bridgeport, Conn. An excellent design.
3. A model dwelling at Holyoke, Mass., erected at a cost of \$6,000 complete. Perspective views and floor plans. H. W. Coolidge, architect, Holyoke. A pleasing design.
4. A cottage erected at Cranford, N. J., at a cost of \$5,000. Floor plans, two perspective views, etc. F. W. Beall, architect, New York.
5. The First Baptist Church recently erected at Warberth Park, Pa., at a cost of \$6,000. A unique design in the Gothic style of architecture.
6. A residence recently erected at Bridgeport, Conn., at a cost of \$5,900 complete. A picturesque design. Perspective elevation and floor plans. Mr. C. S. Beardley, architect, Bridgeport.
7. An elegant residence recently erected at Newton Highlands, Mass. Perspective view and floor plans. Cost complete \$6,472.
8. An attractive design for a suburban dwelling at Holyoke, Mass. Perspective elevation and floor plans. Messrs. Gardner, Pyne & Gardner, architects, Springfield, Mass.
9. A row of model dwelling houses on West Sixty-eighth Street, New York City. An exquisite design. Floor plans and perspective.
10. A cottage at St. David's, Pa., recently erected at a cost of \$5,100 complete. Floor plans and perspective elevation. Messrs. F. L. & W. L. Price, architects, Philadelphia.
11. Views of the extensive red sandstone quarries at Potsdam, N. Y., together with views of various public and private residences built of Potsdam red sandstone.
12. Perspective and floor plans for an architect's residence at Buffalo, N. Y.
13. Miscellaneous contents: Architecture under brick—Architecture and the phonetic arts.—The housing of workers.—Concrete roofs.—Roman temples.—An automatic perspective machine, illustrated.—Drake's Columbus drinking fountain.—Sleigh bells.—A planing machine requiring little room, illustrated.—An improved side and roofing tile, illustrated.—An improved spring hinge, illustrated.—An improved hand planer and jointer, illustrated.—To darken oak.—An improved automatic water gate, illustrated.

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## Notes &amp; Queries

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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.

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Minerals sent for examination should be distinctly marked or labeled.

(4668) G. E. J. asks how construct a bell circuit so that he can place a bell at each end of the line, and ring up from either end on the same circuit, using an open circuit battery. A. You can arrange an open circuit bell to be rung at either end of the line by employing two wires, placing one bell, one battery and one push button in each wire, and using the ground for return in either case. 2. Please explain how to construct an electric telephone receiver for private use. A. You will find electric telephones described in SUPPLEMENT, Nos. 575 and 142.

(4669) A. H. writes: Please inform us what the standard rule is as to the number of cubic feet to a ton of ice. A. Solid ice is 38½ cubic feet to the gross ton, or 34½ cubic feet to the net ton. Ice in storehouse packed solid 42 cubic feet and 38 cubic feet respectively per ton.

(4670) P. F. D. asks what the process is for tinning or whitening small articles of brass. A. Immerse the brass articles, previously made perfectly clean, in a solution, boiling hot, of

Ammonia alum.....17½ oz.  
Boiling water.....12½ "  
Protochloride of tin.....1 "

When properly whitened, wash in hot water.

(4671) J. C. A., Jr.—A good cat in your cellar or garret would probably soon rid your house of rats and mice, but if you prefer trying some other means, we would suggest baiting the rats and mice for a few days in one place, and afterward placing a trap of approved construction in that place, when you will probably be able to clear the house.

(4672) J. McR. asks: What is my best plan to erect building for storing stone lime to prevent slaking? A. Lime if to be stored for any length of time should be packed in tight barrels in a dry atmosphere or as soon as drawn from the kilns, and placed in a building that if made for the purpose should stand entirely clear of the ground, with a clean wind sweep under it and so arranged that the storage room can be opened free to the air when dry, and closed when the atmosphere gets moist or in rainy weather.

(4673) J. K.—You cannot operate a single incandescent lamp to advantage with storage batteries, and primary batteries are out of the question. Any storage battery that would operate a single incandescent lamp would furnish current enough for a series of lamps. Primary batteries require continual attention, and the light produced by them is expensive.