

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**BOILER FEEDER.**—Moses Gregson, Philomath, Oregon. To feed at regular intervals a measured quantity of water to a boiler, this inventor has devised an apparatus comprising increased rotary valves having crank arms, the upper valve having a two-way passage and a steam pipe extending from the lower end of the casing below the lower valve and communicating with the upper part of the casing through the two-way valve, while an oppositely cranked shaft and pitmen connect the cranks with the valve cranks to alternately open and close the valves. Water of any temperature may be used with this device without interfering with its working.

## Railway Appliances.

**CAR BRAKE.**—Robert C. Snowden, McKeesport, Pa. This improvement is more especially applicable to street cars. The brake shoe is first applied to the wheels by means of a hand wheel, and the friction of this brake shoe and the momentum of the car applies a brake shoe to the track rails. A set of toggle arms is arranged immediately above and connected to the rail brake, there being also connected thrust bars, and both being operated simultaneously to apply the brake to the rails by both a vertical and lateral thrust.

**CAR FENDER.**—John H. Faulstich, New York City. This fender has a vertical fixed section adapted to be supported in front of the dashboard, and a lower horizontal sliding section adapted to pass beneath the car, this section yielding sufficiently to break the force of the fall upon it of any one in the track of a moving car. The sliding frame may be quickly carried from the inner to the outer working position, and in conjunction with the fender a guard is provided for the wheels at the sides of the car.

**POULTRY CAR.**—Joseph B. Mockridge, New York City. This is a completely ventilated car for the shipping of live poultry to great distances, providing for the convenient feeding, watering, and continued cleanliness of the birds. An open framework with a compartment for each bird forms a permanent fixture of the car, and is arranged in an inclined position, with the single compartments in vertical rows, so that the droppings are discharged through an opening in the floor of the car. The side doors of the car are so arranged that the attendants can move one door past the other, to load the car in sections until the entire car is loaded.

## Mechanical.

**CLIP FOR BRAKE STAFFS, SHAFTS, ETC.**—Albert W. McCaslin, Pittsburg, Pa. This improvement consists of a bolt, preferably in the form of a carriage bolt, on which is held a clip band engaging part of the brake staff or shaft, to form a brace for the bolt, the device being applicable for fastening a chain to a car brake staff, or to a roller bar, a winding bar, or on shafting, and taking the place of eye bolts. It is simple, easily applied, and not liable to break on a heavy or sudden strain.

**PAPER COATING AND DRYING MACHINE.**—Louis Dejonge, Jr., Stapleton, N. Y. In this machine sheets of paper or similar material are automatically clamped to a carrier, conveyed to a color-applying mechanism and held from buckling while being coated, automatically released at a given point and elevated for removal. The wet sheets may also be automatically removed from the coloring or coating section and made to travel through any desired number of runs, hanging in a pendent position, until the drying operation is completed. The carriages or conveyers for the sheets are arranged close together without interfering with each other, the carriages being automatically returned to the coloring section of the machine when the sheets are removed, and the dip does not injure the sheets in gripping them, the coating and the drying being effected without marring the uncoated surface, if the coating is on one side only.

**DRYING COATED PAPER.**—This is a further invention of the same inventor, improving upon the drying section of the other machine, tapes being employed to maintain the coated paper for a certain time in the drier in a substantially horizontal position, whereby heavily coated thin paper will not buckle or turn at the corners. An improvement is also effected in the manner in which the sheets are carried from the receiving point in the machine to the discharging point.

**LATH AND CHAIN PAPER DRIER.**—William H. Greenwood, New Brunswick, N. J. This invention provides an auxiliary lath box adapted to feed a lath on the chains of a lathing or sticking machine when the main lath box fails to deliver a lath, or when a broken lath may have been delivered, whereby the paper will always be taken up at the proper time to form folds for drying, without danger of spoiling the paper.

## Agricultural.

**COMBINED PLANTER, HARVESTER, HAY RAKE, AND CULTIVATOR.**—Joseph Ehrhard, Diller, Neb. With this machine stalks may be cut and the ground plowed and cultivated, corn may be drilled and cultivated, and all kinds of small seed planted, the machine being also utilized for harvesting grass or grain of any description. It has vertical standards which may be utilized to carry plow blades, cultivator blades, harrow teeth, or similar implements, and each standard has loosely mounted upon it an arm carrying a covering wheel traveling over the path of each disk cutter at the rear. There is a driving connection between the seed-dropping mechanism and one of the axles, and between the axle and the sickle, the devices when not in use being carried out of action. The rake may be used in connection with the sickle or each employed independently, or both may be removed or elevated when the machine is used for cultivating or planting.

**TRANSPLANTER.**—Henry P. Meetze, Chapin, S. C. This device consists of a funnel-shaped body constructed in pivoted sections adapted to open at their lower ends, packing arms operating at each side of the body opposite the division, and there being a con-

nection between the packing arms and the handles of the body. Plants may be conveniently placed in the device, and the latter may be readily introduced into the ground in the desired position, the earth being packed sufficiently around the plants without interfering with the withdrawal of the device.

## Miscellaneous.

**VARIABLE DRIVING GEAR FOR BICYCLES.**—George B. and Amy F. Robinson, Colorado Springs, Col. This improvement dispenses with the use of sprocket wheel and chain, and the gear permits of being readily changed to yield three different rates of speed, high, medium, and low, the shifting parts being arranged in a simple and easily working way. The driving shaft, geared to the rear wheel, is provided with a slidable cone gear adapted to engage a gear wheel slidable on the pedal shaft, the shifting mechanism for sliding both gears being actuated through a lever extending up within convenient reach of the rider.

**PNEUMATIC TIRE.**—John J. Koetzner, Washington, D. C. In this tire an annular under-cut groove is formed on the outer periphery of the rubber tube, and in this groove is packed a filling of emery or other good resistant, over which is cemented a covering of rubber, leather, or similar material, the outer surface being finished to the proper external circular form of the tire. The improvement is designed to protect the tube containing compressed air from being punctured by tacks, sharp stones, etc.

**CIRCLE CYCLE.**—Edward I. Brannan, Richmond, Va. This is an improvement in merry-go-rounds, and provides an apparatus by which riders may simulate ordinary bicycle riding without danger of accidents. The apparatus is formed of detachably connected sections which may be readily taken apart for storage or transportation, and comprises a turn post and circular trackway having a yielding bearing face, with radiating supporting sections, the supporting wheels having a yielding bearing on frames whereby they are normally held from contact with the track ways.

**PYROTECHNIC SIGNALING.**—Nicholas J. Halpine, United States Navy. For long distance signaling at night between vessels at sea this inventor has devised a system which consists in projecting above the sender a single star, which, by its successive changes of color, will represent a numeral or letter, the system being thus adapted for use in connection with the ordinary international and military codes. The changes in the coloring of each star take the place of the numerous stars heretofore required to represent a single letter or number.

**MANUFACTURING ARTIFICIAL BONE.**—Robert Reiman, Egg Harbor City, N. J. This is an improvement on a former patented invention of the same inventor for a process of making white artificial bone, the process covered by this invention relating more especially to making black artificial bone, but the two processes, though differing in some respects, being actually a unit. The process embraces the macerating of the natural bone, separating the liquid from the organic solids, separating the gelatine from the residue of the organic matter, and then converting the gelatine into artificial bone without the residue by adding a chromate, a drying oil and a material to give body to the composition. The product is unflammable, is impervious to the influence of weather and forms a perfect plastic mass for numerous industrial purposes.

**DRAWING INSTRUMENT.**—Herrman A. Kleist, Philadelphia, Pa. This is an instrument of the compass type, dispensing with set screws, while the slip joint is arranged without the fastening device forming an obstruction on the outer face of the instrument. It has a pivot point in which the wear of the pivot pin is automatically taken up, and it has a bail handle by which the legs may be held in any position in which they may have been placed, preventing their wobbling in making a circle or an arc, and enabling the instrument to be handled with precision.

**PARALLEL RULER.**—Augustus S. Cooper, Santa Barbara, Cal. In this ruler a head is fitted to slide on a straight edge, while a drawing blade has a head fitted to slide in one open side of the sliding head and abuts against one edge of the straight edge, obliquely arranged springs connecting the sliding head with the drawing blade, and there being a set screw in the head for regulating the distance apart the lines are to be drawn. The springs consist preferably of rubber bands extending over both sides of the straight edge and passing through apertures in the head portion of the drawing blade and the connecting arm of the sliding head, all of the parts being thus held together.

**INDEXING CUTTER.**—John T. Carmody, Cedar Rapids, Ia. This is a simple hand tool for cutting semicircular nicks in the edges of indexed books to facilitate reference to the required letter. It is a powerful tool, designed to cut through many thicknesses of tough paper with a clean, sharp cut. It has jointed lever handles, with curved registering blades set between and fixed to the inner faces of the jaws, one blade working within the other and the tool effecting a double shear cut starting simultaneously at the two ends and terminating in the center.

**RECORDING DEVICE.**—Adrian C. Kintner, Bedford, Pa. For recording the variations of a timepiece to facilitate setting and regulating it, this inventor provides a device comprising a dial with an opening and two fixed segmental graduations at opposite sides, pivoted pointers indicating on the graduations, while a ring turning on the pointer pivot has indications adapted to appear in the opening of the dial.

**PURSE FRAME.**—Louis B. Prahar, Brooklyn, N. Y. The jaws of this frame are pivotally connected and spring controlled, and have a sliding movement in opposite directions on their pivots, such sliding movement being effected by pressing upon studs which pass loosely through the outer ends of the jaws, and thus releasing the jaws from a latch or lock engagement with each other. The jaws or members of the frame lock automatically on being closed.

**WORKING BUTTON HOLES.**—Cornelius Donovan, San Francisco, Cal. To facilitate the making of

hand-worked button holes this inventor provides a simple device to clamp the cloth near the button hole and to guide the needle in stitching. The device comprises two hinged plates with pointed noses and opposite curved recesses, one nose having beveled edges and the other a grooved flange, there being means for clamping the plates together.

**ORNAMENTAL SHEET METAL HOLLOW WARE.**—Albert Wanner, Jr., Hoboken, N. J. This inventor furnishes the constructive detail, which may be considerably varied, for an inexpensive and highly ornamental article, such as a vase for flowers, receptacles for jewelry and toilet materials, articles for cabinet adornment, etc. The metallic structure, coated with gold, silver or bronze dips, presents a rich and chaste appearance.

**BOOT OR SHOE JACK.**—John I. E. Nelson, Cedar Home, Washington. This is a light and easily adjusted device, efficient for both right and left shoes and useful in studding the soles of boots for logging, mining and mountain climbing, while specially adapted for repairing and reinforcing the bottoms of rubber boots. The main stock section has a socket in which fits a tenon of the instep section, while the last has an opposite tread section reversible upon the instep section, a lock device securing the last upon the instep portion.

**EAR.**—Charlie O. Hodges and George H. Gardner, Batavia, N. Y. An ear which may be used with the earsman facing the bow has been devised by these inventors, the ear being one which may be feathered or moved in any direction as an ordinary ear. The ear has a body section and a body and blade section, and tubular arms pivotally connected with a rocking frame attached to the gunwale of the boat, rods attached to the two sections of the ear passing loosely through the tubular arms, while a connecting block unites the opposing ends of the rods. The improvement may be quickly and easily applied to a boat.

**ROPE CLAMP.**—Henry Vachon, Golden, Canada. This invention comprises a two-limbed clamping plate adapted to be pivoted on a transversely slotted pulley block opposite the transverse slot, forming an efficient attachment for quickly securing a rope's end to a shackled pulley block, a stationary rope cleat or a rotatable snubbing post, to facilitate mooring a vessel or holding in place any movable structure.

**HOSE COUPLING.**—William L. Walker and William A. Nelson, Fitchburg, Mass. The head of one hose section, according to this improvement, has a beveled opening in which is a gasket and a hook-shaped clasp opposite which are parallel ears, there being between the ears a spring latch and a pivoted cam lever, while the head of the opposing hose section is provided with an annular flange to be engaged by the cam lever and received by the hooked clasp. The action of the cam lever makes the connection tight and holds the sections securely in water tight engagement, a disengagement being effected by a moderate lateral pull on the lever.

**CUTTER GUIDE FOR BARBERS.**—James H. Howard and Woodford A. Scoggin, Oregon City, Oregon. To facilitate the even cutting of the hair with the ordinary clippers or any other suitable cutter, these inventors have devised a guide comprising an open frame having a downward extension or bearing at its forward end, while a comb plate within the frame has its back mounted adjustably in bearings above the extension. The comb plate may be adjusted to guide the cutter to cut the hair at any desired length.

**BED PAN.**—Moses S. Diamond, New York City. This is an improved article of manufacture designed to be lighter and less expensive than such articles heretofore, and so made that it may be easily and conveniently cleaned.

## Designs.

**JUG.**—Frederick H. Weeks, Akron, O. This jug is closed at the ordinary opening at the top, and has at one side a spout with a protuberance on the opposite side, there being ears at right angles to the spout.

**BRACKET.**—Edward S. Field, Metehosin, Canada. This is a simple bracket adapted to hold brooms, and has two projecting arms curved toward each other, the opening between the arms flaring outward at the top.

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.

**MODEL ENGINE CONSTRUCTION, WITH PRACTICAL INSTRUCTIONS TO ARTIFICERS AND AMATEURS.** By J. Alexander. London and New York: Whitaker & Company. 1894. Pp. viii, 324. Price \$3.

The author, in his preface, speaks of model engine making being a hobby. He makes for it, however, the plea that it is of invaluable use to young mechanical engineers and advocates that all such devote themselves to it. In addition to its over three hundred pages of text, the book contains a very exhaustive series of large scale drawings to illustrate the subject and make it practical. It cannot but be believed that a young man can spend his time more profitably in building model engines than in many other occupations, provided, of course, that his future work is to lie in practical or scientific lines.

**LABORATORY EXERCISES IN BOTANY, DESIGNED FOR THE USE OF COLLEGES AND OTHER SCHOOLS IN WHICH BOTANY IS TAUGHT BY LABORATORY METHODS.** By Edson S. Bastin. Illustrated with 7 figures in the text and 87 full page plates from original drawings, comprising upward of 250 figures. Philadelphia: W. B. Saunders. 1895. Pp. 540. Price \$2.50.

Modern botanical work, in this octave, seems to be adequately treated; with numerous illustrations, very full

text and an index of nearly 20 pages, everything seems to be present which could be desired for the school. It cannot be reviewed within the space at our disposal, but what we have seen of it is enough to make us recommend it to our botanical readers. It is divided into nearly 60 different exercises, each exercise forming practically a chapter and being fully described in the table of contents, when such description is required. We notice, moreover, a very full treatise on the microscope and accessory apparatus, special reagents, staining fluids and mounting media.

**PERENNIAL IRRIGATION AND FLOOD PROTECTION FOR EGYPT.** Plans. Ministry of Public Works, Government of Egypt. 1894. Elephant folio, 29 plates.

Although no text accompanies the set of plans it will be readily seen by an examination of them that the engineering works contemplated by the government are of great importance and are of the first magnitude. The plans of the Nile on a scale of one to one hundred thousand are admirably executed. The other plans include designs for various dams, sluices, weirs, gates, inlet and outlet canals, discharge sites, etc., as well as plans of the Assuan cataract, pressure and discharge diagrams. The question of flood protection and irrigation in Egypt has occupied the attention of engineers from the earliest times, and it is to be hoped that the problem will at last be solved successfully.

## SCIENTIFIC AMERICAN

## BUILDING EDITION.

FEBRUARY, 1895.—(No. 112.)

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1. Elegant plate in colors, showing an artist's home at Brentwood Park, N. Y. Perspective elevation and floor plan. Cost complete \$3,300. Mr. A. F. Leicht, architect, New York City. A unique design.
2. A residence at East Orange, N. J., recently completed for Geo. R. Howe, Esq. Two perspective elevations and floor plans. A pleasing design. Mr. Jas. H. Linsley, architect, Newark, N. J.
3. A cottage at Glen Summit, Pa., erected for H. H. Harvey, Esq. Two perspective elevations and floor plans. A handsome summer cottage with some novel architectural features. Messrs. Neuer & Darcy, architects, Wilkesbarre, Pa.
4. A residence at Forest Park, Springfield, Mass. Two perspective elevations and floor plans. A combination of the Colonial style with French chateau features. Mr. Louis F. Newman, architect, Springfield, Mass.
5. "Sunnyside." The residence of Robt. S. Walker, Esq., at Flatbush, L. I. Three perspective elevations and floor plans. An exquisite design. Mr. Frank Freeman, architect, New York City.
6. A picturesque and well appointed residence erected for the late E. E. Denniston, Esq., at School Lane, Pa. Cost complete \$22,000. Perspective elevation and floor plans. Mr. Geo. T. Pearson, architect, Philadelphia, Pa.
7. A residence at Nutley, N. J., recently erected at a cost of \$5,800. Perspective elevation and floor plans. Mr. E. R. Tilton, architect and designer, New York City.
8. A cottage in the Colonial style at Southampton, L. I. Two perspectives and floor plans. Mr. C. H. Skidmore, architect.
9. Hall and Library at Glen Ridge, N. J., erected at a cost of about \$12,000. Mr. Wilbur S. Knowles, architect, New York City. Perspective view and floor plans.
10. A dwelling in the Colonial style at South Orange, N. J. Cost complete \$6,500. Mr. P. C. Van Nuys, architect, Newark, N. J. Two perspective elevations and floor plans.
11. Two views showing a most successful alteration in the Colonial style of the Blinn homestead at Cambridge, N. Y. One view showing the original structure as built over one hundred years ago and the other showing the additions and changes recently made. Mr. H. Inman Furlong, architect, New York City. Perspective views and floor plans.
12. A cottage in the Colonial style at Cushing's Island, Me., erected for Francis Cushing, Esq. Two perspective elevations and floor plans. Cost complete \$2,000. Mr. John C. Stevens, architect, Portland, Me. A unique and picturesque design for a model summer home.
13. A Colonial house at Westogue, Conn., being erected for the summer residence of Arthur M. Dodge, New York City. Perspective view and floor plans. Messrs. Child & De Goll, architects, New York.
14. Miscellaneous contents.—Improved method of manufacturing hydraulic cement.—A complete Pompeian house.—Inventions reduce the cost of building.—These dreaded draughts. How they are caused and avoided in window-tight rooms.—Fire proof buildings.—The great staircase in the Capitol Building at Albany, N. Y.—Porous glass for windows.—Mexican onyx.—The Manhattan Life Building, New York.—View showing the water-proofing of the walls by the Caffall process.—A traveling lawn sprinkler, illustrated.—Egyptian cement plaster.—Ornamenting glass.—A bridge of concrete.—A new model parlor door hanger, illustrated.

The Scientific American Building 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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