

providing means of adjustment and means of regulating the air supply through the sleeve to the nozzle.

INLAYING METAL GOODS.—Henri F. L. Aumont, London, England. This inventor has devised a mode of inlaying with tortoiseshell or celluloid, watch cases, jewelry, ornaments, etc., of gold and silver and other metals without the use of cement, producing a transparent, enamel-like effect.

MANHOLE FOR SEWERS.—George Wright, Winnipeg, Canada. To ventilate the manholes of sewers and purify their obnoxious or deleterious gases, the manhole in this invention, fitted internally with a cast iron cylinder provided with a ventilating cover, near which is held a mud pan, while a deodorizing basket is removably supported at the lower end of the cylinder.

UMBRELLA.—William R. Tebow, Tiskilwa, Ill. This inventor has devised a strong and durable runner and improved the construction of the crown-piece, connecting the ribs and braces with the crown-piece and runner by ball joints, to cause the parts to work easily.

POCKET KNIFE.—John P. Nordlow, Worcester, Mass. In the knife devised by this inventor the blade is so held in the handle that the blade may be quickly and easily opened and rigidly held in open position, no matter how long the blade may be.

POCKET KNIFE.—Carl C. Moritz and Stephen D. Greenwood, Salt Lake City, Utah. This knife costs but little more than an ordinary one, but it is so constructed that it may be easily separated into its parts, and the blades, partition plates, and springs readily removed and new parts substituted.

HAIR CURLER.—Thomas C. Moore, Great Falls, Montana. This implement has a tapered tubular body at whose larger end is a radial flange on which is loosely fitted a ring or collar to which is pivoted a clamp arm.

HOOK AND EYE.—Joseph F. Schoepl, Pittsburg, Pa. This invention provides a connecting device formed of a body portion with hook members extended from one side, wings projecting from the ends and an extension from the body between the wings.

HEAD REST FOR BEDSTEADS.—George G. J. Millar, Groveport, Ohio. This is an improvement upon a formerly patented invention of the same inventor, providing for invalids a head rest which is readily adjustable to any desired position without throwing the body out of a straight line, and without much exertion of the attendant.

BEER DRAWING AND SAVING APPARATUS.—William R. Dales, New York City. This apparatus comprises a vacuum tank and a beer discharge pipe connected by a two-way faucet to which a head is applied, with means for controlling the discharge and inlet pipes.

HORSESHOE.—Erasmus Richardson, Esben, Kansas. This is a compound or double shoe, one section being a light racing shoe permanently nailed on, over which fits a recessed heavier section, temporarily nailed in place, and to be used only when training.

CASKET HANDLE.—Lyman E. Woodard, Owosso, Mich. The wall of the casket, according to this invention, has a recessed and perforated ear, in which is a washer, the ear and washer being secured in place by a screw, and forming a base for attachable handles.

DESIGN FOR A ROPE CLAMP FRAME.—Per O. Olsson, Marshall, Minn. The edge contour of this frame presents a series of alternate convexities and concavities, the plate being essentially a plane surface, disposed on which is a ridge-like figure.

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.

HAND BOOK OF PRACTICAL MECHANICS. For use in the shop and draughting room, containing tables, rules, formulas and solutions of practical problems by simple and quick methods. Logarithm, sine, cosine and tangent tables, areas and circumferences; decimal equivalents of an inch, a foot, and a pound, bevel and spur gears, worm and worm gears, United States standard bolts and nuts, tapping drills, lathe thread cutting, cams, etc. By Charles H. Saunders. Hartford: Student Publishing Company. 1895. Pp. 116. Price \$1.

The Pope Manufacturing Company, manufacturers of the Columbia bicycles, are now sending out their desk pad calendars for 1895, affording space for memoranda for each day of the year. This is the tenth annual issue of this style of calendar by the Pope Manufacturing Company, and their very extensive experience has afforded them a vast deal of bicycle literature, points illustrating which bristle upon every page.

The Overman Wheel Company, manufacturers of the Victor bicycles, have issued a neat desk calendar for 1895, consisting of a memorandum pad with blanks on which to jot down brief reminders of things to be remembered, etc., for every day in the year. It goes without the saying that it is embellished with numerous apothegms as to the excellences of the Victor wheel and the advantages of bicycle riding.

The Link Belt Manufacturing Company, of Chicago, send out a very ornamental calendar for 1895, in which a leaf of a small pad is given to each week, the pad being attached to the face of a card in colors. This company furnish shafting, pulleys, gearing, etc., and labor-saving machinery for handling any material in bulk or package.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER, 1894.—(No. 110.)

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- 1. Plate in colors, showing a residence at Bronxwood Park, N. Y. Two perspective elevations and floor plans. Cost complete \$3,500. A picturesque design. Mr. Chas. N. Hear, architect, New York City.
2. Elegant plate in colors, showing a residence at Chester Hill, Mt. Vernon, N. Y. Two perspective elevations and floor plans. An attractive design in the Colonial style. Messrs. Rössler & Wright, architects, New York City.
3. A cottage at Mt. Vernon, N. Y., erected at a cost of \$4,500. Perspective elevations and floor plans. Mr. Walter F. Stickle, architect, Mt. Vernon, N. Y. An attractive design.
4. The handsome residence of W. K. Clarkson, Esq., Brooklyn, N. Y., erected at a cost of \$15,000. Two perspective elevations and floor plans. Messrs. J. C. Cady & Co., architects, New York City.
5. A residence of moderate cost at Bronxwood Park, N. Y. Perspective elevation and floor plans. Mr. A. F. Leicht, architect, New York City. A pleasing design.
6. The residence of W. D. Love, Esq., at Bronxwood Park, N. Y. Two perspective elevations and floor plans. Mr. W. H. Cable, architect, New York City. A neat design treated in the Queen Anne style.
7. A Colonial residence at Flatbush, L. I., erected at a cost of \$7,500. Two perspective elevations and floor plans. Mr. John J. Petit, architect, Brooklyn, N. Y.
8. A residence at Mt. Vernon, N. Y. Two perspective elevations and floor plans. A pleasing design in the Colonial style. Mr. Chas. E. Miller, architect, New York City.
9. A picturesque and well appointed residence at Belle Haven, Conn., recently erected for E. C. Converse, Esq. Four perspective elevations and floor plans. An excellent design. Mr. Bruce Price, architect, New York City.
10. A Colonial cottage at Bayonne, N. J., recently erected for Joseph Thomas, Esq., at a cost complete \$2,700. Perspective elevation and floor plan. Mr. A. C. Longyear, architect, New York City.
11. Miscellaneous contents.—Hints to readers.—The education of customers.—How to catch contracts.—The latest and best designs for houses.—Diamond cement plaster.—Preserving metals in roofs, bridges, etc.—A perfect roofing material.—Stamped metal ceilings, illustrated.—New wood stains.—Woodwork vs. flame.—Ebenizing wood.—A stove for heating water, illustrated.—Columbian Exposition award for copper and brass goods.—An improved band saw file, illustrated.—How to move large maples.—Value of coverings for steam pipes.—Watering garden plants.—Earthquake effect on brick buildings.—The trouble New York builders have.—Foothold on pavements.—Milwaukee water elevator, illustrated.

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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. Woven wire brushes.—The Belknap Motor Co., of Portland, Me. are the patentees and manufacturers of the best woven wire commutator brush on the market. 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.

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

(6331) S. M. B. asks: What is the proper size of steam ports and exhaust ports and bridges between ports of cylinder 2 3/4 inches by 3 inches stroke, 3/4 inch travel of valve, also the power of engine at 300 revolutions per minute with 70 pounds steam pressure? Would an oscillating engine develop the same power, of same dimensions? What size boat would above engine run? Give height of frame and length of pitman rod for upright engine of above dimension, proper size of link and length of eccentric rods and size of belt and fly-wheel; also would small boiler, 22 inches high, 12 inches diameter, fire box 10 inches high, 10 inches diameter, flues 12 inches long, 2 inches diameter, upright, generate enough steam to run above engine? If not, what size should I have? A. Steam ports and bridges may be 3/4 inch wide, exhaust port 3/4 inch, all 1 inch long. The engine should develop an indicated 3/4 horse power at 3/4 inch cut-off. An oscillating engine of the same size should develop the same power, but its structural defect does not recommend it. The power is suitable for a 14 foot sharp built boat of the row boat type. Connecting rod should be 8 inches long, center to center. Other details can only be made from a detail drawing. A 1 1/4 inch belt and 16 inch flywheel. The vertical boiler should be 25 inches high, 15 inches diameter, with twenty 3/4 inch tubes for the above engine and speed.

(6332) B. F. E. asks: What are the metals and fluids used in the chloride of silver battery? A. The central negative electrode is silver; the depolarizer which surrounds it is silver chloride; the positive electrode is zinc; the excitant is a solution of ammonium chloride or sal ammoniac. You can refill them yourself, if you wish to. Sometimes caustic potash is used as the exciting substance.

(6333) Denver House asks: Given a perfect wheel made to revolve free on a perfect axle, will it return from its forward motion upon stopping? A. On a horizontal axis the wheel will have a tendency to slightly turn back from the instant of stopping, to come to an equilibrium. The small difference in the size of the journal and its bearing allows the journal to roll up the curve of the bearing box, when on coming to rest it returns to a center bearing by gravity, which gives the wheel a backward motion. This should not take place in a vertical axle.

(6334) V. B. C. asks: 1. Is there any reason why steam or water could not be used internally in a gasoline engine to cool the cylinder? A. No reasons beyond these based on practical points can be given. It seems neater and simpler to cool externally. 2. A pint of gasoline will make how much volume of vapor at atmospheric pressure? A. Two and one-half to three cubic feet, depending on the composition of the gasoline.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 18, 1894,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing various inventions and their patent numbers, including: Addressing envelopes, etc., machinery for, G. Clark; Advertising machine, sign, bridge & Patterson; Agricultural machinery, gearing and gear covering for, J. D. Scheffel; Air brake, J. D. P. Schenck; Air brake governor, T. H. Haberkorn; Air brakes, block system for automatically operating, J. H. Fox; Air brakes, mechanism for automatically actuating, J. H. Fox; Air brakes, track device to automatically operate, J. P. Clifton; Alarm, See Burglar alarm; Alkali, process of and apparatus for the production of caustic, C. T. Vautin; Apartment house, M. L. Ungrich; Apples, pears, etc., machine for pulping, C. J. Ollagnier; Ax rolls, machine for making, E. Rogers; Bait receptacle, W. E. Gilmore; Bait press, A. G. Cox; Baling press, C. E. Whitman; Ball, See Bowling ball; Bandage, suspensory, J. Teuscher, Jr.; Barrel making machine, Vale & Ohl; Bearing wheel, ball, H. F. Coates; Belt, electric, Fuller and Taylor; Bench stop, J. Daily; Bicycle brake, Hitchfield & Sanford; Bicycle lubricator, C. O. Furbush, Jr.; Bicycle safeguard and support, T. L. Bissell; Binder for music, magazines, etc., Beeing & Sterk; Bit, See Bridge bit; Expansion bit; Bleaching powder, apparatus for making, C. Keller; Block signaling system, electric, A. J. Wilson; Board, See Sheet board; Bottle stopper and filler, combined, I. Pomeroy; Bottle stoppers, machine for feeding crown, N. Musar; Bowling ball, F. G. Deekenwael; Box, See Match box; Box, Z. B. Webb; Bracket, See Dental bracket; Brake, See Air brake; Bicycle brake; Car brake; Wagon brake; Bridge, F. F. Lane; Bridle bit, F. Swales; Brooder, chicken, L. C. Billings; Broom, D. A. McDonel; Brooms, manufacturing, D. A. McDonel; Brush handle, fue, E. P. Hunt; Buckle, suspender, J. P. McGraw; Burglar alarm, detonating, J. W. Hord; Burglar alarm system, A. Stroumberg; Burglar alarm systems, circuit closer for, A. Stroumberg; Burner, See Hydrocarbon burner; Lamp burner; Burning granular fuel, apparatus for, C. W. Claybourne; Button setting machine, A. J. Shipley; Cabinet, stationery, L. C. Bearsley; Cables, tension device for towing, Humphrey & Hoffmann; Camera, See Camera; Camera; Candle grasp, H. Glaser; Candy, machine for cutting stick, J. M. Allardyce; Car brake, E. Allen; Car brake and power controller, electric, A. W. Mitchell; Car brake, automatic, H. E. Olson; Car coupling, A. Railway Co.; Car coupling, J. T. Buckus; Car coupling, J. Clark; Car door, R. T. Garland; Car fender, Kneel & Johnson; Car fender, automatic street, J. T. Van Gestel; Car fender, street, W. H. Brock; Car motor, street, J. Radomski; Car seat, reversible, S. Hoffman; Card, reinforced stencil, F. D. Belknap; Cartridge shell for practice shooting, W. M. Thomas; Case, See Gear case; Pencil case; Piano case; Cash register, multiple adding machine for, C. J. Ryberg; Cash registers, sealing device for, J. O. Byrns; Chain link, R. A. & C. Breal; Chair, See Rail chair; Railway chair; Charging apparatus, E. Solway; Chart, astronomical, F. E. Ormsby; Churn, J. A. Madox; Clay product machines, cutter for, J. H. Onwaka; Cleaner, See Wheel cleaner; Clipper attachment, hair, C. O. Bechtel; Clock, electric programme, J. L. McCaskey; Cloth line fastener, C. Bartsch; Clutch friction, A. A. Barnes; Coffee pot, C. C. Davis; Coin holding and delivering device, C. F. Kraump; Compound engine, J. Feebles; Confectionery machine, S. J. Hicks; Controller handle, H. Mittelsdorf; Corset, T. S. Gilbert; Cotton gin, F. Goodwin; Cotton opener, A. Kirschner; Cotton presses, combined belt shifter and brake for, T. M. Wallace; Couch, bed, and a tub, combined, B. S. Mahen; Coupling, See Car coupling; Pipe coupling; Coupling, S. A. Stahley; Crises in beds, support for canopy rods in metallic, W. T. Mersereau; Crusher, See Ore crusher; Cultivator, T. Belair; Cultivator, A. Lindgren; Cultivator, disk, H. E. Doolson; Cultivator, standard, device for adjustably attaching weed cutters, W. A. McCoy; Cyclometer, J. A. Mosher et al.; Cyclometer, C. E. Moss; Danger signal and lock for switches, G. E. Edwards; Dental bracket, A. Boudin; Dental napkin holder, G. A. Bryson; Dental plates, forming, M. P. Boyd; Derrick, M. Beal; Display rack, combined folding and revolving, W. H. Conrad; Ditching machine, A. C. Carter; Door check, C. W. Hamshaw; Door, flexible, A. S. Sandlering; Door operating device, W. C. Lucas; Doors, device for operating sliding, W. H. Brodie; Dovetailing machine for preparing edges of parts of electrolyte or stereotype plate blocks, E. C. Williams; Draughtsman's instrument, O. F. Hill; Drill, See Rock drill; Drilling machine, F. W. Williams; Dust pan, G. H. Gere; Dye, blue, Bierer & Dela Harpe; Dye, substantive red, J. J. Brack; Dynamometer, R. J. Reifson; Eaves trough, A. C. Kamberg; Electric conduit, T. P. La Pointe et al.; Electric converter, F. C. Priestly; Electric meter, T. Brugger; Elevator controlling device, C. E. Foser; Elevator controlling device, See & Tyler.