

Business and Personal.

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Mr. Johan Koopmans, of the firm of Johan Koopmans & Co., commission merchants and agents of American manufacturers in Amsterdam, Holland, will be in the United States this month to solicit the representation of manufacturers and exporters. Would also solicit the agency of an American flour mill. For reference or further information, apply to Jos. Agostini, 62 Broad St., New York.

The Engineering Record, the recognized authority on municipal and building engineering, has recently been enlarged by the addition of a department in which notable industrial plants are regularly described and illustrated, the steam and power plants being a conspicuous feature. Recent publications include the great Ivorydale plant of Messrs. Proctor & Gamble, described in 23 columns and illustrated by 57 drawings. The steam plant at Ivorydale is separately treated in 13 columns and 31 drawings. The new foundry of Henry R. Worthington, at Elizabethport, N. J., 16 columns, 26 illustrations. National Metal Company's foundry and brass finishing shop, Brooklyn, 13 columns, 29 illustrations. Niagara Power Plant (now in process of publication), 6 columns, 6 illustrations. Steam power plant of the Dwight Manufacturing Co., Chicopee, Mass., 9 columns, 7 illustrations. Published Saturdays, 12 cents a copy. The Engineering Record, 277 Pearl St., New York.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

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 This is for our information and not for publication.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. 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.

(4608) W. I. S. asks: 1. What is the strongest electric battery known to science? How made? A. Practically the storage battery. For high voltage a battery using sodium as the positive element

may be cited. A couple has been described which is supposed to give nearly 4 volts E. M. F. 2. What is the platinum type photographic paper coated with, and what is the developer used composed of? A. Platinum type paper is coated with iron and platinum salt and developed on cold solution of potassium. It is a patented process. The prepared paper can be obtained from Willis & Clements, Philadelphia, Pa. 3. How may blue prints be copied with the camera? A. Blue prints may be copied by inserting an orange red glass screen in the camera behind the lens and giving three times the usual exposure. 4. How may I make good black ink suitable for a fountain pen? A. Try following: Concentrated borax solution, 4 parts; Strylac, 1 part; aniline black, q. s. Or try an aqueous solution of aniline black. 5. How may I plate small articles without a battery, in silver or gold? A. For gold and silver plating try the following: Solution for Gilding Brass and Copper.—The following formula has been adopted for water-gilding, as it is termed. Fine gold, 6 1/2 dwts. Convert the gold into chloride and dissolve in 1 quart of distilled water, then add 1 pound bicarbonate of potassium and boil the mixture for two hours. Immerse the articles to be gilded in the warm solution for a few seconds up to one minute, according to the activity of the bath. Silver Wash.—Mix 1 part chloride of silver with 3 parts pearl ash, 1 1/2 parts common salt, and 1 part whiting, and rub the mixture on the surface of brass or copper, previously well cleaned, by means of soft leather or a cork moistened with water and dipped into the powder. When properly silvered, the metal should be well washed in hot water, slightly alkalinized, and then wiped dry. 6. I inclose a substance which I found on breaking open a piece of anthracite coal. Please tell me what it is. A. The substance is a piece of shale or slaty coal. It seems intermediate between a true slate and coal.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

November 22, 1892,

AND EACH BEARING THAT DATE.

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

Table listing inventions with patent numbers, including: Air brakes, automatic regulator for, M. L. E. Duval; Alarm, see Fire alarm; Annunciator, electrical, F. S. Carter; Anvil attachment, C. W. Rice; Attrition mill, W. H. Hoffman; Autograph registering, H. Cook; Axle washer rack, T. Gingras; Bag holder, M. Fortin; Baking pan, E. E. Fogel; Balance wheel, Bouck & Lovendale; Bale tie, J. B. Rollins; Bale tie machine, W. S. Livengood; Basket protector, clothes, L. Beard; Baskets, machine for forming berry, R. E. Morey; Bath room drying companion, D. W. Leet; Bed or pillow, air, S. Curlin; Belt fastener, F. E. Shaut; Bench stop, S. W. Jenks; Bicycle, A. H. Clark; Bicycle, A. S. Swarthout; Bicycle brake, W. H. Crook; Bicycle brake, P. H. Huggins; Bicycle brake attachment, W. S. Porter; Bicycles, cone bearing and ball lock for, O. Eucher; Bicycles, vise stand for sustaining, B. M. Steele; Boat, see Pneumatic boat; Boiler, see Steam boiler; Boiler, R. Davies; Boiler furnace, C. Schroll; Boiler furnace, steam, A. Wilkinson; Bolster, spring, E. P. Hodge; Boltwork, safe, F. H. Bullard; Box, see Knockdown box; Letter box; Signal box; Box lid support, S. H. Raymond; Brake, see Bicycle brake; Car brake; Wagon Brake beam, H. B. Robischung; Brake beam, C. D. Wiley; Brick kiln, C. B. Cox; Bridge, draw, C. A. Zimmerman; Bridge gate, draw, F. A. Philbrick; Bridge gate, safety, H. J. Rohlf; Buckle and snap, hook, combined, T. E. Page; Built-up work for pew backs, etc., making, M. Lancaster; Burner attachment, T. W. Bartholomew; Button, C. S. Gooding; Calipers, automatic indicating, J. W. Porter; Can, see Key opening can; Key opening sheet metal can; Oil can; Can filling machine, E. Wildt; Car brake, H. H. Kelley; Car brake, Lawrence & Garretson; Car brake, J. H. Pfeiffer; Car brake, J. Trendley; Car brake, automatic, E. Farnsworth; Car coupling, T. Courser; Car coupling, C. Demareux; Car coupling, F. Enos; Car coupling, J. Globig; Car coupling, J. M. Gledhill; Car coupling, S. C. Noble; Car coupling, S. G. Waggoner; Car curtain, street, A. D. Cochran; Car door, T. Eubank; Car draw bar attachment, F. Brown; Car motor, O. Blessing; Car seat, convertible, W. H. Steacy; Car starter and brake, P. Wueffling; Carbon brush holder for dynamo-electric machines and motors, J. J. Wood; Carburetor, J. A. Enos; Card attach, G. W. McGaslin; Carriage, child's, C. Muehselien; Carriages, parasol for baby, A. Featherstone; Case, see Hat case; Cash and parcel carrier, S. J. Besthoff; Cash register and indicator, E. Del Valle; Cash register and indicator, W. F. Wurzburg; Cash register, indicator, and check printer, G. Boemermann; Casting pig iron, apparatus for, H. D. Hibbard; Cement, artificial Portland, C. Von Forell; Cement, artificial Roman, C. Von Forell; Cement, manufacture of, L. Enright; Chain link coupling device, C. F. Noble; Chair, see Insulating chair; Chimney cowl, W. J. Kayser; Chopper, see Cotton chopper; Cigarette holder, S. P. Bryant; Clamp, see Ironing machine clamp; Clay to make ballast, burning, H. G. & W. Butler; Clock, electric, M. V. B. Etridge; Cloth cutting machine, L. E. Jones; Cloth shrinking machine, C. W. Schaefer; Coat and hat hook, wire, A. W. Parmelee; Cock, W. S. Loveland; Coin holder, W. H. Gilman; Coin wrapper, F. A. Jaekel; Coin press, beam, J. E. Betts; Concentrator, J. Tulloch; Condenser, S. Blackmore; Conveyor, G. W. McGaslin; Cop, S. W. Wardwell, Jr.; Corn conveyor, J. & C. G. Healea; Cotton chopper, E. N. Brickell; Counter, barrel and keg, J. Osterlag, Jr.; Coupling, see Car coupling; Thill coupling; Cover, motor, M. T. & A. L. Reese; Cow bag protector, H. H. Chase; Crupper, H. H. Palmer;

Table listing inventions with patent numbers, including: Cultivator and planter, combined, R. Hasson; Cultivator, beet, A. Lindgren; Current director, J. F. McElroy; Current regulator, J. F. McElroy; Currycomb, A. Fager; Cymbal amplifier, P. A. Owen; Darning machine, D. McQuarrie; Decapping and recapping tool, J. H. Barlow; Desk, roll top, J. R. Jones; Desks and seats, adjustable supporting standard for school, F. A. Chandler; Disk furrower, Haines & Mathis; Drawer fastener, E. Feige; Drawing geometrical curves, instrument for, C. L. Davis; Drier, B. C. Batcheller; Drill, see Rock drill; Ear appliance or instrument for teachers of deaf-mutes, G. Colton; Easel, A. C. Terlosie; Electric machine, dynamo, G. Baehr; Electric switchboard, C. E. Scribner; Electrically reducing refractory compounds, T. L. Willison; Elevator, F. J. Fowler; Elevator, C. E. Reid; Elevator safety attachment, W. J. White; Envelope fastener, A. J. Newbury; Exercising device, finger, Guillard & Catherine; Exhibitor for the display of goods, revolving, F. C. & H. Brown; Extractor, see Honey extractor; Fabric, see Woven fabric; Feed regulator, automatic, C. C. Ferguson; Feeder lifter, S. R. Lewis; Fence, A. L. Bonaffon; Fence, F. De Land; Fence machine, hand, Martin & Cahill; Fence, metallic, S. Green; Fence post, V. Findling; Fence wire, I. Oaks; Fence wire, braided, J. B. Cleaveland; Fence, F. C. De Land; Finger ring, I. Lehman; Fire alarm, pneumatic, A. A. Lehmann; Fire escape, W. J. McCollum; Fish or game carrier, F. T. Verhaven; Fishing rod, H. Whitaker; Flash light apparatus, B. Lawson; Folding table, W. H. Washer; Forge, electric, Burton & Angell; Forging apparatus, electric, Burton & Angell; Forging machine gripping device, H. W. Loss; Forging vehicle clips, machine for, A. L. Kern; Fruit pressing apparatus, J. S. Dunkel; Fruit transporting package, J. Y. Mott; Furnace, see Boiler furnace; Gas furnace; Incinerating furnace; Furnace, J. S. Ecker; Furniture, convertible, H. Atwood; Gauge, see Perspective gauge; Pressure gauge; Game apparatus, A. C. Hunsberger; Garbage receptacle, Russell & Hayden; Gas furnace, F. Siemens; Gas producer, A. K. Murray; Gate, see Locking gate; Sliding gate; Swinging gate; Generator, see Steam generator; Glasses, machine for grinding drinking, H. C. Schrader; Gold and silver matte, refining, W. Langguth; Gold ores, process of and apparatus for treating, L. C. Baum; Governor, group, M. G. Wilder; Grain carrier, J. K. Karr; Graphite or like substances from crushed rock, method of and apparatus for separating, A. W. Nibbeling; Guard, see Stock guard; Guard rail, F. W. Barrett; Hair, manufacturing curled, P. Woll, Jr.; Hammer, power, J. Evans; Handkerchief holder, lady's, H. C. Kennedy; Harness pad, E. L. McClain; Hat, C. W. Brown; Hat case, A. Groulx; Hat or bonnet stand, S. E. L. Wilson; Hay boom, Dillon & Carr; Hay carrier track, C. A. Gutenkunst; Hay carrier, track, C. Taylor; Hay ricker, C. Blume; Heating and cooling milk, apparatus for, J. L. Jonsson; Hoisting and conveying apparatus, H. R. Palmer; Honey extractor, centrifugal, C. W. Metcalf; Hook, see Coat and hat hook; Whimtree hook; Hook, J. W. Grantland; Horse power, A. Wickoy; Hose reel, A. D. Coplin; Hosiery, machine for making lace, Clarke & Mabry; Hub, bicycle, C. L. Winchell; Huller, see Pea huller; Ice cream freezer, W. H. Hopkins; Incinerating furnace, O. Stevens; Index, F. Bowman; Indicator, see Speed indicator; Station indicator; Street or station indicator; Valve indicator; Inhaler, W. C. Wilson; Inkstand, A. W. Skog; Insulating chair for rails, F. E. Kinsman; Ironing machine clamp, F. A. Walker; Ironing board, W. W. Lawbaugh; Jack, see Lifting jack; Jewelry, etc., apparatus for cleaning, C. T. Bradshaw; Joint, see Rail joint; Railway joint; Keg or barrel, W. J. Leggett; Key opening can, Zimmerman; Key opening sheet metal can, J. Zimmerman; Kiln, see Brick kiln; Knife, C. C. Brooks; Knitting machine, warp, B. L. Stowe; Knitting machines, transferring mechanism for, H. C. Carter; Knockdown box, G. S. Carter; Lamp, H. E. Shafer; Lamp, electric arc, J. Brockie; Lamp, electric arc, W. O. Meissner; Lamp, incandescent electric, G. A. Frei; Lamp, incandescent electric, J. M. H. Carter; Lamps, automatic safety extinguisher for, J. B. Dowdall; Lamps, suspension device for incandescent, S. Porter; Lasting machine, F. McCoy; Lasting machine, for individual, G. W. Wiley; Lathe, uprighting, D. H. Church; Lawn sprinkler, C. G. Ette; Lazy tong gate, James & Ferguson; Lead or crayon holder, E. Faber; Leather goods, apparatus for making pattern; Letter box, house, Bennett & Parkinson; Lifter, see Feeder lifter; Lifting jack, Bryant & Beauregard; Lighting device, B. H. Pendleton; Lightning arrester, H. G. Osburn; Lighthouses, apparatus for storing, handling, and transporting, A. Cirkel; Lock, see Time lock; Lock, G. F. Abbott; Lock for bag, purse, and pocket book frames, F. R. Deek; Locomotive, F. Brown; Lubricator, F. S. Livingston; Lumber sorter, C. R. Little; Mail catcher, A. T. Bacon; Measure, tailor's, C. Gunkel; Measuring canister, F. Espel; Measuring instrument, electrical, E. Weston; Measuring vessel, J. S. Camden; Metal heating apparatus, electric, G. D. Burton; Metal working apparatus, electrical, G. D. Burton; Mill, see Attrition mill; Minerals, mates, spels, or other substances containing nickel, treating, J. De Coppet; Mitering machine, C. F. Marquard; Moistening pad, H. L. Keeler; Mortising machine, D. Jenkins; Mower cutter bar, M. C. Ayer; Multiple switch boards, test system for, C. E. Scribner; Music leaf turner, A. F. Vorce; Net, fly, M. W. Bach; Nut lock, Lantz & Neely; Oil can and siphon pump, T. Bumann; Pad, see Harness pad; Moistening pad; Padlock, F. W. Schultz; Padlock, combination, J. J. Deal; Padlock, permutator, J. J. Deal; Pail, W. B. Thomson; Palette, artist's adjustable, M. R. Fowkes; Pan, see Baking pan; Paper, machine for surface coating, C. M. Gage; Paper, means for coloring, W. N. Cornell; Parer and corer, apple, C. A. Benton; Pea huller or sheller, J. H. Emson; Pens, ink holder for, C. W. Vose; Pencil sharpener, state, G. S. N. Hummer; Pencil sharpener, attachment for carpenters' pencils, F. Street; Percussion tool, pneumatic, W. E. Gibbs;

Table listing inventions with patent numbers, including: Perspective gauge, D. C. Hunter; Photograph display rack, J. H. Abram; Piano action, upright, G. M. Guild; Pianoforteaction, J. H. Phelps; Piano tuning pin, H. B. Enos; Pick, Harrison & McLellan; Plant setting, J. A. McFarland; Planter, combined corn and cotton, T. W. Knight; Plater, seed, Fiene & Kroencke; Pliers, J. Monto; Plow, M. J. McBurnett; Plow, C. Wagar; Plow, reversible, M. R. Habbell; Pneumatic boat, collapsible, Gamble & Allen; Pneumatic tire wheel, C. A. Burwell; Poke, animal, C. J. Le Count; Post, see Fence post; Post office lock drawer, J. W. Harriott; Potato coverer, J. Lundy; Power, see Horse power; Press, D. W. Bromley; Pressure gauge, steam, M. McNeil; Pressure regulator, Lehr & Botani; Printing plate and making the same, W. H. Stead; Printing press and folding mechanism, combined, L. C. Crowell; Projectile, F. M. Ashley; Projectile, Grenfell & Accles; Propelling apparatus, boat, W. S. Salisbury; Protector, see Hat protector; Pulley, E. Crossley, Jr.; Pulley for transmitting power, J. Meier; Pump, measuring, W. Wrighton; Rack, see Photograph display rack; Sheep rack; Tronners supporting rack; Rading screen, W. E. Landon; Rail joint, J. E. Sarvis; Railway joint, R. E. Greenwell; Railway rail, P. H. Dudley; Railway safety plate, T. B. Smith; Railway signaling system, Edison & Gilliland; Railway switch, portable, J. E. Norwood; Railway switch, portable, J. E. Norwood; Railway system, J. P. Kuhlmann; Railway tie and fastening, J. L. Chapman; Reel, see Hose reel; Refrigerating apparatus, L. C. Williamson; Refrigerator, W. C. Trussell; Register, see Autographic register; Cash register; Current register; Regulator, see Feed regulator; Pressure regulator; Thermostatic regulator; Wind mill regulator; Releasing device, electric, W. R. Hewitt; Ring, see Finger ring; Road roller, steam, H. W. Laster; Rock drill, N. Monday; Roller, see Road roller; Rolling screen, A. S. Deane; Safety attachment, S. T. Mosby; Salicylate of phenyl, making, P. Ernert; Salts from molasses, process of obtaining ammonia or other, L. Sternberg; Sash fastener, M. Bourke; Sash fastener, E. Walker; Sash holder, C. D. Kelsey; Sash holder, H. S. Moore; Sash operating mechanism, H. J. Casey; Sashes, swinging jack for window, V. Schirmer; Saturating articles or substances, J. A. Titzel; Saw handle, C. M. Fryer; Scale, computing, J. W. Culmer; Scale, weighing and price, G. Lundberg; Scenic effects, apparatus for producing, F. Seymour; Scraper, road, W. F. Mentley; Screen, see Rolling screen; Seeder and harrow, combined, Nelson & Heuett; Seeding machine, Fender & Riter; Sewing machine guide, T. C. Robinson; Sewing machine guiding device, L. S. Chaffee; Sewing or embroidery table, A. R. P. Morton; Shears, for clipping and holding shears; Sheep rack, J. N. Scudder; Sifters, wire agitator for flour, J. H. Bigelow; Signal box, successive non-interference, W. E. Decew; Signaling apparatus, electrical hose, W. Fowler; Signaling apparatus, electric, J. J. Ross; Sliding gate, A. Wilkinson; Smoke consumer, J. L. Hornig; Smoke consuming device, E. Kunzer; Snow plow, P. H. Craddock; Soap holder, C. S. Higgins; Soath water apparatus, Ramsey & Carleton; Speaking tube, C. L. Pairet; Speech or other sounds, apparatus for recording, W. Bruening; Speed indicator, L. T. Weiss; Spigot for refrigerators, etc., N. Engquist; Spinning machine separator, C. A. Fair; Spring and support, combined spiral, W. F. Porter; Spring crushing machine, J. H. Miller; Spring setting machine, J. H. Miller; Sprinkler, see Lawn sprinkler; Sprinkler, water, C. Kirschen; Steam moistener, postage, F. Goerte; Stamp, time, J. Gauss; Stamps and labels, device for affixing, H. Campbell; Stand, see Hat or bonnet stand; Station indicator, automatic, W. S. Dillon; Steam boiler, see Moore; Steam generator, W. C. Higgins; Stock guard, horned, L. L. Tackitt; Stone, manufacture of artificial, L. Enright; Stones, producing inlaid work on, E. Rausch; Stove grate, W. D. Southard; Stove, oil, M. G. Benedict; Stoves, odor-removing device for cooking, Tolliver & Ruffin; Street or station indicator, W. A. Turner; Swinging gate, W. Taylor; Switch, see Railway switch; Tramway switch; Table, see Folding table; Ironing table; Sewing or embroidery table; Turntable; Tables, electric device for vibrating, W. L. Imlay; Tanks, reservoirs, silos, etc., construction of, P. A. J. Moore; Thermostatic indicator, E. C. Merrill; Thill coupling, W. Danz; Thill coupling, H. A. Groux; Tie, see Bale tie; Railway tie; Time lock, E. S. Phelps; Timepiece, illustrated, Haas, Jr. & Trovare; Tin plate apparatus for manufacturing, D. Edwards; Tinning iron and steel plates, E. Norton; Tire, elastic, P. Davies; Tire, inflatable, E. H. Seddon; Tobacco leaf holder, J. M. Wood; Toe weight, M. Feenerty; Tool holder, S. J. Davidson; Toy kitchen and stove, J. Jaeger; Trace fastener, T. J. Smith; Track cleaning machine, Beal & Bail; Track sanding device, C. W. Sherburne; Tramway switch, Davis & Ripley; Tray, G. Horne-Payne; Trolley wire hanger, D. E. Lain; Trousers supporting rack, W. Gerhard; Truck, safety car, G. W. Moore; Trunk tray, A. Jordan; Tubes, means for connecting draught animals; Tube, see Speaking tube; Tubes, electrical method of and apparatus for forming, Burton & Angell; Turbine, steam, F. Hart; Turntable, G. W. Fatnos; Twine holder, T. Harson; Typewriter cabinet, S. L. Conde; Umbrella runner retainer, H. J. Herbert; Valve, check, F. A. Phillippi; Valve for high pressures, stop, H. W. Loss; Valve gear, F. H. A. Devlin; Valve gear, J. J. Giles; Valve seat, J. H. McGowan; Vehicle, one-wheel, Frazee & Wintersteen; Vehicle running gear, T. G. Mandt; Vehicle seat clamping device, T. Fauler; Vehicle supporting device, W. S. Overfelt, et al.; Vehicles, means for connecting draught animals to, T. H. Brig; Wagon brake, hay, J. Lucksinger; Wagon scoop board, F. M. Gibson; Washing, see Window washer; Washing machine, J. M. Campbell; Washing machine, J. P. Hale; Washing machine, J. Hofmann; Washing machine, N. H. Long; Washing machine, C. T. Woods; Water closet, catch basin, H. C. Buddenberg; Wheel, see Balance wheel; Paddle wheel; Wheel mechanism, worm, T. A. Weston; Wheelbarrow, P. Hoogerzell; Wheelbarrow hook, W. C. Wentworth; Whipsocket and rein holder, combined, W. H. Haney; Windmill regulator, automatic, C. E. Tobie; Windwarder, T. H. Gage; Wire braiding machine, J. B. Cleaveland; Wire reel carrier, J. Phiegar;