

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Hollar's Safe and Lock Co., York, Pa., manufacturers of improved Fire and Burglar-proof Safes, Bank and Safe Deposit Vaults and Locks. See adv. p. 61.

25' Lathes of the best design. Calvin Carr's Cornice Machinery. G. A. Ohl & Co., East Newark, N. J.

For Sale.—Engine Lathes. One 16" x 6' Blaisdell, 2d hand; one 18 x 6 Lodge & Barker, hollow spindle, new; also one each, 8', 10', and 14' x 21', Steptoe make, new. Each lathe complete. Jno. Steptoe & Co., 214 W. 2d St., Cincinnati, O.

Drop Forgings. Billings & Spencer Co. See adv., p. 45.

Wanted.—A good draughtsman and pattern-maker for modern engines. Adolph Lettelt, Grand Rapids, Mich.

Equatorial Silvered Glass Telescopes, 5 1/2" aperture, \$135; 6 1/2" aperture, \$175; 7 1/2" aperture, \$225; 7 1/2" aperture, \$275. Eye Pieces and Finder. J. A. Brashear, Pittsburg, Pa.

Unfalling water power, buildings, and planing mill plant. Best point for manufacturing and shipping. Very cheap. J. F. Palmer, Auburn, N. Y.

The Ide Automatic Engine, A. L. Ide, Springfield, Ill. Steam Pumps. See adv. Smith, Vaile & Co., p. 30.

Contracts taken to manuf. small goods in sheet or cast brass, steel, or iron. Estimates given on receipt of model. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with \$5 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. More than eight hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

Best Squaring Shears, Timmers', and Cannery Tools at Niagara Stamping and Tool Company, Buffalo, N. Y.

Lathes 14 in. swing, with and without back gears and screw. J. Birkenhead, Mansfield, Mass.

The Best.—The Dueber Watch Case.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent Agency, 361 Broadway, New York.

Farley's Directories of the Metal Workers, Hardware Trade, and Mines of the United States. Price \$3.00 each. Farley, Paul & Baker, 530 Market Street, Phila.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. "Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsath & Co., Manchester, N.H.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss, 84 John St., New York.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn.

Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill.

Ice Making Machines and Machines for Cooling Breweries, etc. Placet Artificial Ice Co. (Limited), 142 Greenwich Street, P. O. Box 3038, New York city.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

The Sweetland Chuck. See illus. adv., p. 46.

Improved Skinner Portable Engines. Erie, Pa. Catalogues free.—Scientific Books, 100 pages; Electrical Books, 14 pages. E. & F. N. Spon, 35 Murray St., N. Y.

Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders, American Fruit Driver. Free Pamphlet. See ad., p. 62.

Brass & Copper in sheets, wire & blanks. See ad., p. 60.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Diamond Tools. J. Dickinson, 64 Nassau St., N. Y.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 61.

Our goods rank first for quality, safety, and durability. Please compare them with any other make, and is not found better and cheaper, quality considered, we will bear the expenses of the trial. Lehigh Valley Emery Wheel Co., Leighton, Pa.

Cutters for Teeth of Gear Wheels formed entirely by machinery. The Pratt & Whitney Co. Hartford, Conn.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 62.

20,000 Duc Spherical Elevator Buckets, sizes 3 1/4 to 17 inches, constantly on hand. Telegraphic orders filled. T. F. Rowland, sole manufacturer, Brooklyn, N. Y.

Straight Line Engine Co., Syracuse, N. Y. See p. 61.

First Class Engine Lathes, 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

NEW BOOKS AND PUBLICATIONS.

PSYCHE, A JOURNAL OF ENTOMOLOGY. Published by the Cambridge Entomological Club, Cambridge, Mass.

This periodical is in the tenth year of its publication. The editor and his associates are entomologists of standing, four of them being appointed by State governments and one is assistant entomologist to the United States Department of Agriculture. The object of the periodical is to give valuable information useful to agriculturists on the habits and lives of insects injurious to vegetation. The indices to each number form a synopsis of entomological literature for the period and scope they cover.

DAS ELEKTRISCHE LICHT (ELECTRIC LIGHT). By Dr. Alfred von Urbanitzky. Wien, Pest, Leipzig, 1883. 218 pages.

In this work the author gives a description of the various kinds of electric lamps, the theory of the incandescent lamp, the theory of the arc lamp, the temperature, and the strength of the light. He then describes various means of subdividing the current, the loss of the current caused by the subdivision, etc. Then follow the lamps and carbons. He divides the incandescent lamps into two classes, those having imperfect conductivity, such as the lamps of Edison, Maxim, Swan, etc., and into incandescent lamps with imperfect contact, for instance, such lamps as the Reynier, Werdermann, Hauck, etc. He describes the different systems of arc lamps, the various kinds of carbons, the method of manufacturing the carbons, and finally describes the lamps having inclined carbons. This work is the third volume of Hartleben's Electro-Technical Library.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) J. H. P. asks for the French formula of making a hektograph, which for several reasons, we understand, is superior to any other in use. A. The composition is:

- Good ordinary glue.....100 parts. Glycerine.....500 " Barium sulphate finely powdered.....25 " (Or the same amount of kaolin.) Water.....375 "

(2) E. S. R. writes: I have about 4 dwt. of 10 k. gold dissolved in nitro-muriatic acid. What can I use to precipitate it so I can prepare it for electroplating? A. Evaporate to crystallization and dissolve the resulting chloride of gold in water. It may then be used for plating. Iron sulphate will precipitate the gold as metallic powder.

(3) L. T. S., of Launceston, Tasmania, proposes freezing out yellow fever and similar diseases by converting a dwelling or hospital into an immense refrigerator by means of ice. This would not be practicable except in a building specially constructed for the purpose.

(4) A. writes: 1. I have two cisterns; the water is full of little mites or lice; sometimes they are almost invisible, then they get larger till they show very plain; but what finally becomes of them or where they come from I do not know. What are they and what will destroy or keep them out? A. The larvae of mosquitoes, flies, and other insects infest cisterns that are open to the air or dirty. Cleanliness and closing the top with a stone or earth will generally keep the water free from larvae. 2. Is it so that a lightning rod can be dangerous? I have supposed that if insulated it neither attracts nor repels, and if not insulated it must transmit a portion of the charge, according to capacity; if the connection is perfect, the rod large enough, and the ground sufficient, the entire charge. A. Lightning rods are dangerous to persons near them in thunderstorms. They are liable to be overcharged. 3. You always say "solder" all connections. Now, isn't there some mistake? Is not solder a poorer conductor than iron, and would not the simple contact of the two ends be better than to fill between with solder? Or if the conductor is flat, say 1/2 x 1/4 inches, would it not make a better joint to lap and bolt or rivet the ends together. A. Solder, because it is very sure to make a perfect connection. Riveting with copper rivets is also good, but should be well done with two or three rivets.

COMMUNICATIONS RECEIVED.

- On Repairing Old Pictures. By W. D. A. On the Eclipse Expedition. By A. F. G. On Centrifugal Strain in Revolving Cylinders. By S. W. On Improvements in Railways. By P. D.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 17, 1883,

AND EACH BEARING THAT DATE.

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

- Amalgamating apparatus, Huntington & Koch.....281,629 Amalgamator and separator, combined, T. R. Timby.....281,651 Animal shears, H. C. Chiles.....281,454 Animal trap, J. H. Cook.....281,461 Antiseptic, C. M. Pielsticker.....281,554 Arm rest, W. J. Butler.....281,338 Automatic register, Trott & McElvain.....281,652 Axle lubricator, car, M. MacMahon.....281,538 Axle, vehicle, A. E. Smith.....281,310 Bag. See Hand bag. Baling and packing away cotton, G. W. Grader.....281,490 Ball. See Base ball. Ball trap, N. Fischer.....281,356 Bar. See Chain bar. Bars, device for bending and shaping the ends of, J. H. Dougherty.....281,470 Barrel, knockdown fruit, C. E. Bartram.....281,210 Barrel or bin, tilting, A. M. Herman.....281,506 Base ball, S. D. Castle.....281,238 Bath tub, folding or cabinet, Pickett & Reid.....281,255 Battery. See Galvanic battery. Beehive, J. H. French.....281,483 Bicycle, J. B. Girard.....281,489 Bit. See Router bit. Bits, extension shank for, C. Scoch.....281,568 Boat. See Life-boat. Boiler. See Steam motor boiler. Bolt. See Pin bolt. Book back, F. Bowman.....281,657 Boot and shoe lasting machine, J. R. Scott.....281,306 Boot or shoe lasting jack or holder, Z. T. French.....281,258 Boots or shoes, machine for cutting pegs from, N. S. Wakefield.....281,587 Bottle stopping device, G. S. Norris.....281,290 Bottles, lamps, etc., apparatus for filling, C. C. Redmond.....281,396 Box. See Paper box. Toy money box. Box, wire bound, J. B. Groot.....281,264 Bracelet, W. Holden.....281,628 Bracelet, A. Keller.....281,371 Bran, etc., method of and device for preparing and packing, W. A. Morrison.....281,288 Bridle blind, M. L. Hall.....281,359 Buffing machine, G. W. Emerson.....281,355 Burner. See Vapor burner. Burial casket catch, W. C. Langenau.....281,277 Button, E. Wuerrtel.....281,425 Button or stud, C. H. Niggeman.....281,642 Button or stud, T. A. Searle.....281,404 Buttons, metallic eye for, H. C. Luther.....281,637 Can, I. Richardson.....281,556 Can and jacket, carrying, C. Kivitts.....281,374 Canoe, J. S. Stephenson.....281,316 Car brake, E. R. Bristol.....281,445 Car coupling, C. C. Eber.....281,251 Car coupling, C. W. Ferguson.....281,479 Car coupling, I. N. Hoyt.....281,271 Car coupling, A. C. Long.....281,595 Car door fastener, S. L. Denney.....281,246 Car, sleeping, J. A. Slescher.....281,409, 281,410 Carbureting apparatus, C. A. Paquelin (r.).....10,858 Carriage top props, locking the nuts of, G. L. Crandal.....281,344 Carriages, canopy holder for children's, A. G. Snell.....281,311 Cartridge reloading tool, T. H. Logan.....281,636 Case. See Lock case. Telescopic case. Writing case. Caster for roller skates and furniture, O. E. Wait.....281,324 Caster, spring, Roberts & Stevens.....281,299 Casting car wheels, W. Wilmington.....281,422 Cellulose, process of and apparatus for lining hollow articles with, M. C. Lefferts.....281,529 Chain bar, F. E. Sturdy.....281,646 Chair. See Corn husking chair. Oscillating chair. Chair, J. T. C. Wright.....281,617 Chair, W. A. Cove.....281,424 Chandelier extension fixture, R. A. Wooding.....281,656 Chart holder, D. Yarian.....281,601 Check row cords anchor for, L. Eberhart.....281,473 Chenille fringe, J. Loeb.....281,534 Chimney top, A. Rosenstar.....281,645 Chopper. See Cotton stalk chopper. Cigar bunching machine, F. E. Kelsey.....281,517 Cigarette machine, H. F. Casgrain.....281,451 Circuit closer, C. Bartlett.....281,603 Cleaner. See Fruit cleaner. Clocks, illuminating, J. M. Crawford.....281,465 Clocks, second-hand attachment for, F. L. Gregory.....281,498 Clocks, synchronizing, G. G. Wagner.....281,585 Clod crusher, O. A. Satranz.....281,303 Clothes line hook, J. B. Garfield.....281,260 Clothes wringer and mangle, C. Gentesse.....281,358 Clutch, friction, H. C. Crowell.....281,242 Coat spring, M. C. Stone.....281,578 Coffee boiler lip, G. W. Knapp.....281,522 Coffee pot, C. Halstead.....281,265 Coffee pot, T. Keys.....281,373 Coffin lid fastener, J. Martin.....281,332 Corn and bunion shield, J. J. Georges.....281,487 Corn from the cob, machine for cutting green, S. D. Warfield.....281,588 Corn husking chair, J. Hansel.....281,366 Cornice and cornice pole, combined, J. W. Campbell.....281,340 Corset, F. D. Cooke.....281,462 Corset fabric, J. G. Kienzle.....281,519 Cotton conveyor, A. D. Thomas.....281,319 Cotton stalk chopper, L. B. Stith.....281,577 Counter rail or arm-rest bracket, E. F. Seidel.....281,405 Coupling. See Car coupling. Shaft coupling. Thill coupling. Cow tail holder, I. C. Mayo.....281,513 Cracker machine, Cornell & Schincke.....281,464 Crusher. See Clod crusher. Cultivator, S. L. Allen.....281,426 Cultivator, cotton, H. B. Fry.....281,259 Cut-off valve gear, Hallock & Spaulding.....281,312 Cut-off valve gear, E. F. Spaulding.....281,314

- Cut-off valve gear, Spaulding & Hallock.....281,313, 281,315 Cutter. See Meat cutter. Stalk cutter. Welt cutter. Dash frames, die for making, G. M. Peters.....281,553 Derrick, lever, O. H. Mitchell.....281,639 Desk, M. J. Hafgar.....281,498 Desk, vertically adjustable, H. W. Grobl.....281,494 Dial, sun, N. Larsen.....281,627 Dish washing machine, E. Wiseman.....281,598 Disinfectant, Kingzett & Zingler.....281,521 Door check, Hazen & Van Gorder.....281,504 Door check, G. G. & R. Matthews.....281,542 Door hanger, E. Mack.....281,687 Door hanger, H. T. Moody.....281,546 Door hanger, parlor, S. Shreffler, Jr.....281,308 Door, sliding, A. P. Beard.....281,433 Draught equalizer, J. W. Helme.....281,505 Drill. See Grain drill. Seed drill. Easel, E. Verner.....281,591 Eggs, preserving, F. J. Pradex.....281,565 Electric light circuits, safety catch for, L. Stieringer.....281,576 Electric lights, carbon electrode for, J. A. Mott.....281,295 Electric machine, dynamo, E. Thomson.....281,486 Electric machine, dynamo or magneto, T. A. Edison.....281,553 Electric machine regulator, dynamo, T. A. Edison.....281,349, 281,350 Electric switch, D. P. Heap.....281,363 Electrical generator, T. A. Edison.....281,351 Elevator. See Grain elevator. Elevator safety device, C. C. Palmer.....281,550 Embroidering machine, J. Becker.....281,231 Engine. See Pumping engine. Engraving machine, R. Friebl.....281,484 Engraving machine, J. Hoop.....281,609 Engraving machine, pantograph, J. Hoop.....281,510 Evaporating pan, N. Sanders.....281,568 Excavating machine, hydraulic, R. Stone.....281,415 Explosive compounds, manufacture of, Sanlaville & Laligant.....281,565 Fabric, roller for stretching, J. Hawthorn et al.....281,503 Fan and caster supporter, combined table, J. Hugo.....281,513 Fare recorders, dial and reading disk for, R. M. Rose.....281,301 Fare register and recorder, R. M. Rose.....281,302 Farm and other gates, C. McMillen.....281,544 Feeder, boiler, R. Lauckner.....281,380 Felt articles, mould for making, S. G. Alexander.....281,329 Ferrule for canes, etc., C. Degenhart.....281,245 Fertilizer distributor, W. C. Steck.....281,317 Fifth wheel, W. C. Shipherd.....281,307 Fifth wheel plate, C. T. Gandy.....281,357 File handle, J. F. French.....281,626 File, paper, C. A. Davis.....281,466 Filter, W. M. Blackner.....281,336 Filtering apparatus for purifying paraffine, etc., D. T. Gray.....281,491 Fire escape, S. H. Blingaman.....281,235 Fire escape, E. Gerot.....281,488 Fire escape, W. Nack.....281,549 Fire escape, H. Redden.....281,547 Fire escape ladder, W. T. Covert.....281,342 Flues, tool for expanding and beading, T. Crozier.....281,346 Folding machine, L. C. Crowell.....281,619 Folding table, V. A. Menuez.....281,281, 281,282 Frame. See Quilting frame. Fruit cleaner, J. F. Hudson.....281,512 Fruit pitter, N. B. Hicks.....281,507 Fruit stoner, I. F. Betts.....281,234 Furnace. See Hot air furnace. Galvanic battery, Gilbert & Starr.....281,262 Game apparatus, J. Doyle.....281,348 Game, target and ring, A. Evans, Jr.....281,624 Gas lighter, electric, C. H. Crockett.....281,345 Gas lighter, electric, W. A. Drysdale.....281,471 Gas meter, J. J. Myers.....281,641 Gas regulator, W. Carter.....281,449 Gate, A. J. Sweeney.....281,647 Generator. See Electrical generator. Geodimeter, S. Dewell.....281,468 Glass shade, W. H. Brunt.....281,609 Glassware mould, W. H. Brunt.....281,610 Gleaner and binder, M. G. Hubbard.....281,367 Glove, etc., fastener, E. J. Kraetzer.....281,376 Glove lacing, A. C. Mather.....281,541 Grain binders, feeding and packing mechanism for, J. R. Severance.....281,570 Grain binding machine, G. Esterly.....281,623 Grain drill and corn planter, combined, J. L. Reed.....281,558 Grain, drying, F. Schumacher.....281,402 Grain elevator, N. G. Simonds.....281,572 Grain separator, J. M. Welbourn.....281,589 Grapple, pipe, E. K. Green.....281,492 Grate, G. B. Mershon.....281,384 Guard. See Miter wheel guard. Mosquito guard. Saw guard. Gun, magazine, H. Carr.....281,341 Guns, mounting, A. Preusser.....281,643 Hame, C. Lange.....281,536 Hame fastener, H. Tay.....281,582 Hand bag or satchel, T. A. Freeman.....281,482 Handle. See File handle. Saw handle. Tool handle. Hanger. See Door hanger. Shafting hanger. Harvester, G. G. Hunt.....281,368 Harvester and husker, combined corn, W. H. Secor.....281,569 Harvester, self-binding, I. E. Arner.....281,227 Hat curing machine, E. Tweedy.....281,321 Hat manufacturer's lap machine, G. W. Alexander.....281,236 Hatchways, automatic door for elevator, M. F. Kidd.....281,632 Hay knife, G. H. Perkins.....281,552 Headlight with signal attachment, locomotive, I. A. & C. I. Williams.....281,327 Hides, composition for deplating, J. L. Moret.....281,287 Hides, tawing, C. P. Smallridge, Sr.....281,411 Hinge, spring, W. H. Williams.....281,594 Hinge, table, J. C. Vetter.....281,322 Hoos, manufacture of, Bowater & York.....281,441 Hoisting and conveying machine, A. E. Brown.....281,446 Hoisting apparatus, H. B. Larzelere.....281,528 Holder. See Chart holder. Corw tail holder. Pen and pencil holder. Pocketbook holder. Sash holder. Hook. See Clothes line hook. Hop house drying floor, O. M. Knox.....281,273 Hot air furnace, H. J. Peistring.....281,551 Ice pick or cutter, A. C. Rex.....281,644 Incubator, E. S. Renwick.....281,398 Indicator. See Railway time indicator. Station indicator. Injector, W. T. Messinger.....281,385 Injector, H. B. Murdock.....281,389 Insulator, telegraph, T. L. Chapman.....281,452 Jack. See Boot or shoe lasting jack. Jaw wrench, sliding, G. J. Cline.....281,456 Key. See Telegraph key. Key fastener, W. Dewey.....281,247