

Business and Personal.

Marine Iron Works. Chicago. Catalogue free.
"U. S." Metal Polish. Indianapolis. Samples free.
Yankee Notions. Waterbury Button Co., Waterbury, Ct.
Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

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 This is for our information and not for publication.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.

(7926) W. S. asks: 1. Why is it that the image on the ground glass of a camera appears upside down? A. Because the rays of light cross as they pass through the opening of the lens.

(7927) C. D. R. asks: Can you give me a recipe for transparent etching ground, for retouching? Silicate of soda is transparent, but leaves a ragged edge in the lines.

(7928) F. C. asks: How can I cover a pulley with paper or leather? Pulley is of cast iron 9 inches by 8 inches with an extra smooth face.

(7929) DeF. H. asks: 1. How many volts and amperes does the simple plunge battery described in "Experimental Science" give? A. Each cell gives an average of 1.8 volts, so that in series you would have 1.8x8 or about 14 volts.

(7930) L. E. T. writes: Steel being a conductor of electricity, why is it that the steel balls used in the coherer of a wireless telegraph system, being in contact with one another as they are, do not make a continuous circuit in the receiving apparatus.

TO INVENTORS.
An experience of over fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

INDEX OF INVENTIONS
For which Letters Patent of the United States were Issued for the Week Ending JULY 24, 1900,

AND EACH BEARING THAT DATE.
See note at end of list about copies of these patents.]

Table listing inventions with names and patent numbers. Includes: Acid and making same, formic aldehyde compound of uric, F. & L. Ach. 654,123; Acid, making alkyl-uric, F. Ach. 654,121; Addressing and wrapping articles, machine for, L. C. Wing. 654,214; Addressing machine, E. G. Lewis. 654,263; Air brake attachment, C. E. Tench. 654,189; Air cooling and ventilating system, Leuder & Alves. 654,264; Alkylchloropurine and preparing same, F. Ach. 654,120; Ankle brace, W. A. Sears. 654,286; Armature oil guards, locking device for, A. J. Gaing. 654,391; Articulating plate, T. F. Driskill. 654,527; Automatic sprinkler, W. H. Stratton. 654,188; Automatic switch, T. S. Savake. 654,327; Ax. S. T. Johnson. 654,245; Axle sand shield, vehicle, E. H. Wilson. 654,374; Badge pin, G. H. Brooks. 654,513; Baking powder, P. B. Hunt. 654,573; Baking powder, phosphate, P. B. Hunt. 654,571; Baking powder, phosphoric acid, P. B. Hunt. 654,572; Baking preparation, F. B. Hunt. 654,570; Bale tie, M. W. Walker. 654,280; Baling press, P. K. Dederick. 654,137; Barrel setting up form, A. C. Luyckx. 654,407; Battery. See Secondary battery. 654,416; Bearing, E. K. Ruef. 654,416; Bearing regulator, ball, J. F. Wilson. 654,375; Bearing, roller, W. Ponton. 654,178; Bed, in valid, F. M. Lepore. 654,193; Beer cooler, O. Roderwald. 654,358; Beer pasteurizing apparatus, E. Wagner. 654,384; Bell, C. A. Brink. 654,381; Bell, H. S. Pullman. 654,324; Bell, electric, C. H. Ferguson. 654,531; Bicycle attachment, F. Ganser. 654,245; Bicycle brake, E. C. F. & E. C. F. Otto, Jr. 654,411; Bicycle chain adjuster and hub, H. Rupsch. 654,182; Bicycle crank, A. Andziewicz. 654,590; Bicycle handle bar, C. W. Neff. 654,483; Bicycle lock, J. C. Bioren. 654,128; Bicycle seat post, W. Bond. 654,562; Bicycle support, A. C. Hagen. 654,452; Binder, magazine, J. B. Fisher. 654,145; Blowpipe, E. Gustafson. 654,566; Boiler. See Washboiler. 654,166; Bolt. See Door bolt. 654,166; Book, manifold sales, C. Leveque. 654,166; Boots or shoes, protect setting machine for, Winter & Conlon. 654,298; Bottle, non-refillable, J. A. Bonner. 654,510; Bottle, non-refillable, C. J. Cooze. 654,230; Bottle, non-refillable, H. B. Mason. 654,266; Bottle, non-refillable, T. P. Schott. 654,361; Box. See Mail box. Miter box. Nest box. Paper box. 654,221; Brace. See Ankle brace. Shoulder brace. Bracket. See Curtain fixture bracket. Brake. See Bicycle brake. Car brake. Wagon brake. 654,142; Brake, G. S. Dunn. 654,131; Brush and mop, combined scrubbing, W. P. Enis. 654,345; Brush machine, H. M. Schwartz. 654,184; Brush, paste, W. H. Redington. 654,414; Bunsen burner, S. Mason. 654,408; Burner. See Bunsen burner. Vapor burner. Button badge, E. S. Whitehead. 654,247; Button fastener, G. W. Gwinn. 654,308; Cabinet, F. D. Craig. 654,181; Calculating machine, F. C. Rinche. 654,181; Calculator for educational purposes, W. Schmidt. 654,554; Calipers, O. J. Wabner. 654,370; Camp chair and stool, combined folding, F. X. Broder. 654,221; Can. See Packing can. Can heading machine, H. C. Hunter. 654,257; Can heads, roll press for forming weakened lines in, H. C. Hunter. 654,256; Can lock, milk, R. J. W. Hamill. 654,587; Can making machine, H. C. Hunter. 654,253; Cancellation and postmarking machine, stamp, S. J. Evans. 654,144; Canned food, heating appliance for, Murmann & Opawski. 654,174; Caupoy frame or support, J. T. Johnson. 654,156; Car brake, J. S. Francis. 654,241; Car, combination freight, F. O. Cokenour. 654,304; Carriage bolt fastener, G. T. Wilcox. 654,494; Car dumping machine, G. H. Hulet. 654,544; Car lighting apparatus, automatic switch for electric, W. F. Richards. 654,325; Car, railway, A. G. Blackwell. 654,507; Car seat, W. M. Norcross. 654,352; Carureter, D. Barendall. 654,575; Carriage belt fastener, G. T. Wilcox. 654,494; Carriage step, folding, J. E. Glover. 654,535; Carriage belt, Mills & Ornduff. 654,475; Cash register, T. Carroll. 654,226; Certificate, etc., multiple, R. L. Crampton. 654,387; Chair. See Camp chair. Cigar machine, Tyberg. 654,178; Cigar machine, Tyberg & Arents. 654,203; Cigar, self lighting, G. L. Reenstierna. 654,490; Clamp. See Floor clamp. Cleaner. See Flue cleaner. Raisin cleaner. Cleat, supporting, J. W. Atlee. 654,338; Closet seat, E. S. Barnes. 654,301; Clothes line hanger, H. Karper. 654,312; Clothes line tightener, S. P. Yeatman. 654,337; Clutch, friction, F. L. Kuhn. 654,162; Cook, gas, A. J. Wiegand. 654,559; Cooking indicator, automatic, M. P. Richards. 654,280; Coffin case, L. O. Brown. 654,465; Coke oven, E. Coppe. 654,307; Coloring matter, mordant dyeing, O. Bally. 654,505; Conveyor, bridge, G. H. Hulet. 654,465; Cooler. See Beer cooler. Milk cooler. Corn from cobs, machine for cutting green, H. H. Hoke. 654,540; Corn removing device, B. Wagner. 654,581; Corset, apparel, D. Kops. 654,408

WOOD or METAL Workers
Without Steam Power should use our Foot and Hand Power Machinery. Send for Catalogues
A—Wood-working Machinery, B—Lathes, etc.
SENECA FALLS MFG. CO.
695 Water St., Seneca Falls, N.Y.

AMERICAN PATENTS.—AN INTERESTING and valuable table showing the number of patents granted for the various subjects upon which petitions have been filed from the beginning down to December 31, 1894. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 1002. Price 10 cents. To be had at this office and from all newsdealers.

ENGINE & FOOT TOOLS AND SUPPLIES. LATHES. SEBASTIAN LATHE CO. CINCINNATI, O.

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses. SHEPARD LATHE CO., 133 W. 2d St., Cincinnati, O.

Water Emery Tool Grinder
Has no pumps, no valves. No piping required to supply it with water. Always ready for use. Simplest in construction, most efficient in operation.
Send for catalogue and prices.
W. F. & JNO. BARNES CO.
1999 Ruby St., Rockford, Ill.

THE EUREKA CLIP
The most useful article ever invented for the purpose. Indispensable to Lawyers, Editors, Students, Bankers, Insurance Companies and business men generally. Book marker and paper clip. Does not mutilate the paper. Can be used repeatedly. In boxes of 100 for 25c. To be had of all bookbinders, stationers and notion dealers, or by mail on receipt of price. Sample card, by mail, free. Manufactured by Consolidated Safety Pin Co., Box 121, Bloomfield, N. J.

COBURN PATENT TRACK
Parlor, Barn and Fire Door Hangers
All Styles. Latest Improvements. Send for Book. Coburn Trolley Mfg. Co. Holyoke, Mass.

Physical and School Apparatus
GALVANOMETERS
STANDARD, SINE, TANGENT, REFLECTING and WIEDEMANN GALVANOMETERS. Catalogue free.

E. S. Ritchie & Sons, Brookline, Mass.
12-inch Pipe cut off and Threaded with ease by one man and a
FORBES PATENT DIE STOCK.
Smaller sizes proportionately easy. Send for Catalogue.
THE CURTIS & CURTIS CO., 6 Garden Street, Bridgeport, Conn.

Adjustable Scriber. A knurled and nickel-plated, eled hollow sleeve, with a clamp-vice at each end.
to hold different tools. Made in 8 in. and 12 in. lengths. Price of either size, 50c. Knife point for pattern makers, 15c. extra. Catalogue of Fine Tools free.
THE STARRETT CO., Athol, Mass., U.S.A.

ARMSTRONG'S No. 0 THREADING MACHINE
Can be attached to bench or post. Designed for threading the smaller sizes of pipe, iron or brass, also bolts. Has two speeds, one for pipe 1/2 to 1 inch, the other for pipe 1 1/2 to 2 inches, inclusive. Uses the regular Armstrong adjustable dies. Other attractive features. Send for particulars. The Armstrong Mfg. Co., 135 Centre Street, New York. Bridgeport, Conn.

If You Want the Best Lathe and Drill
GHUGKS
BUY WESTCOTT'S Strongest Grip, Greatest Capacity and Durability, Cheap and Accurate.
Westcott Chuck Co., Oneida, N. Y., U. S. A. Ask for catalogue in English, French, Spanish or German. FIRST PRIZE AT COLUMBIAN EXPOSITION, 1893.

THE RIVETT SLOTTOR
as an attachment to our 8-inch Precision Lathe is exceedingly useful in cases where it is necessary to put a key-seat in as small a hole as a cutter may be made to stand the work. From 40 seconds to 2 minutes suffices to put a key-seat in a hole 1/4 in. diameter and 1/4 in. long—it depends on the metal. This is acknowledged to be a most valuable tool, indispensable in all up-to-date shops throughout the country.
FANEUIL WATCH TOOL CO., Brighton, Boston, Mass.

VOLNEY W. MASON & CO., Friction Pulleys, Glutches & Elevators PROVIDENCE, R. I.

THE HARRINGTON & KING PERFORATING CO.
PERFORATED METALS OF EVERY DESCRIPTION FOR ALL USES.
SCREENS OF ALL KINDS.
225 NORTH UNION ST. CHICAGO, ILL.

Table listing various mechanical and electrical items with prices. Includes: Cotton piece goods, fixing the finish on, M. S. Sharp. 654,330; Coupling. See Car coupling. Pipe coupling. 654,122; Thill coupling. 654,553; Cover and binder, W. J. Nickerson. 654,353; Cultivator, T. Oldham. 654,353; Cultivator, pivot axle, W. L. Beall. 654,125; Current motors, starting mechanism for altering, J. J. Wood. 654,208; Currycomb, G. D. Beldin. 654,218; Curtain fixture bracket, G. Heiligenstein. 654,152; Cutter. See Milling cutter. 654,466; Cycle motor, J. H. Munson. 654,478; Dichloro-oxypurin and making same, L. & F. Ach. 654,122; Display forms, hand for, H. Lyons. 654,265; Distribution system, E. Thomson. 654,387; Door bolt, A. Erierson. 654,579; Door check and closer, E. Cliff. 654,304; Door check and closer, combined, E. Cliff. 654,305; Door closer and check, E. Cliff. 654,305; Door stop, J. B. Brier, St. Louis. 654,502; Drill. See Expansion drill. Grain drill. 654,168; Dye and making same, black azo, Levinstein & Mensching. 654,167; Dye and making same, blue anthraquinone, O. Unger. 654,294; Dye and making same, green anthraquinone, O. Unger. 654,295; Dye from anthracene blue, O. Bally. 654,506; Egg case filler frame, E. F. Bohm. 654,508; Electric furnace, H. Leleux. 654,483; Electric heater, R. R. Morison. 654,320; Electric metering system, F. E. Town. 654,438; Electric motor controlling apparatus, Merrick & Stull. 654,400; Electric motors, means for regulating, R. Lundell. 654,551; Electric switch, W. Ely. 654,239; Elevator. See Force blast elevator. 654,396; Engine. See High speed engine. Rotary engine. Steam engine. 654,502; Engine tie, G. B. Wilt. 654,140; Engines, apparatus for regulating fuel supply of internal combustion, K. Diesel. 654,140; Envelop, safety, E. Simon. 654,418; Evaporating apparatus, W. Mather. 654,470; Expansion drill, H. J. Lawrence. 654,164; Eyeglasses, A. B. Critzer. 654,523; Fastening device, H. G. Carleton. 654,393; Feed cutter blower, F. M. Bonham. 654,509; Feeder, poultry, J. C. F. Aisatt. 654,427; Fence, hedge, E. Bechtel. 654,126; Fence machine, wire, H. Ward. 654,425; Fifth wheel, Kimble. 654,460; Filter, R. J. McNally. 654,479; Firearm, J. C. Wilkin. 654,336; Fire escape, F. W. Nebelthau. 654,492; Fire escape, M. Rinn. 654,115; Fire escape, J. Ryan. 654,415; Fire extinguishing apparatus, electric current grounding device for, W. A. Dennett. 654,138; Fire hose from suitable sources, means for automatically supplying water to, F. B. Powers. 654,413; Fireproof window, A. Nidermeyer. 654,273; Flat iron holder, R. K. Trier. 654,395; Flooring, F. L. 654,434; Flooring clamp, Stowell & Rounds. 654,395; Flue cleaner, B. Peterson. 654,488; Flue stopper, W. E. Sykes. 654,565; Fluid pressure regulating device, T. J. Hogan. 654,569; Force blast elevator, A. Humbarger. 654,252; Fountain. See Soda fountain. 654,434; Furnace. See Electric furnace. Roasting furnace. Smokeless coal burning furnace. 654,175; Furnace for heating and treating gaseous mixtures, J. Mactear. 654,467; Furnace fuel feeding mechanism, A. W. Griffith. 654,338; Furnace hold, C. S. Chapman. 654,516; Furnaces, spraying attachment for steam boiler, H. E. Parson. 654,485; Fuse, electrical safety, A. L. Stevens. 654,187; Fuse for explosive projectiles, E. Scriba. 654,285; Garment hook, F. Macey. 654,465; Gas generating apparatus, acetylene, C. W. Metcalf. 654,300; Gas generator, acetylene, H. B. Robinson. 654,491; Gas lighter, electric, J. Y. Parke. 654,255; Gas meter, A. Ebeald. 654,309; Gas or petroleum motor, J. Rambaud. 654,358; Gas producer, E. A. W. Jefferies. 654,456; Gas regulator, automatic, A. H. Elliott. 654,238; Gate, W. E. White. 654,210; Generator. See Gas generator. 654,210; Glass articles, apparatus for forming hollow, Haley & Bridgewater. 654,451; Glass, production of marbled surfaces upon, D. Laffan. 654,404; Gold from cyanide solution, W. A. Caldecott. 654,437; Governor, speed, C. F. Sleigh. 654,382; Grain binder deck, S. K. Dennis. 654,282; Grain drill, C. R. Crain et al. 654,386; Grain scourer, J. L. Tolver. 654,192; Graphophone, H. Macdonald. 654,171; Grate, fire, H. Mehrten. 654,318; Grinder, S. K. Dennis. 654,233; Grinding machine, S. K. Dennis. 654,234; Grinding machine, A. B. Landis. 654,313; Grippers and gripper extension rods, slide fastening for, Jenkins & Wills. 654,259; Guns, apparatus for ramming charges of turret or barrette, Dawson & Horne. 654,443; Guns with explosive charges, apparatus for supplying turret or barrette, Dawson & Horne. 654,444; Gun cotton press, E. Hollings. 654,398; Gun fastener, J. J. Morris. 654,477; Handle. See Tool handle. 654,477; Handle fastening, L. Sturges. 654,423; Handle for converting kerosene tins, etc., into buckets, E. S. Ross. 654,492; Hanger. See Clothes line hanger. Trousers hanger. 654,492; Harrow truck, C. R. Raber. 654,180; Hat, apparel, T. Borrow et al. 654,432; Hay and stock rack, combined, Rapson & Furness. 654,357; Heater. See Electric heater. 654,327; High speed engine, T. C. Billetop. 654,127; Hinge, spring, J. Keene. 654,400; Hook and eye fastener, H. B. Robinson. 654,434; Hose sprayer attachment, W. C. Bush. 654,132; Hot draught system, A. W. Case. 654,302; Hub attaching device, G. A. Mayer. 654,472; Hub, vehicle, B. F. Sweet. 654,365; Ice, facilitating formation of, O. Guthrie. 654,149; Ice house, O. Guthrie. 654,148; Ice making apparatus, G. H. Abrams. 654,576; Indicator. See Cocking indicator. Pump action indicator. Station indicator. 654,390; Induction coil, R. A. Fessenden. 654,390; Ironing machine, W. M. Barnes. 654,428; Jars, bottles, etc., device for packing, O. H. Cough. 654,385; Jaws, etc., for cutting, A. B. Case. 654,512; Jewel setter, roller, C. J. Adams. 654,124; Journal box, A. C. Pessano. 654,276; Junction or connection box, R. Hundhausen. 654,310; Knitting machine, A. March. 654,469; Knitting machine, circular, H. A. Houseman. 654,347; Label, duplicate, W. B. Johnson. 654,435; Lacing book, shoe, H. H. Eaton. 654,237; Ladder, folding or flexible, J. Hargreaves. 654,394; Lamp, R. M. Dixon. 654,343; Lamp, acetylene gas generating, D. Genese. 654,244; Lamp burner, H. Greenwood. 654,537; Lamp, carbureting, J. M. Woods. 654,504; Lamp, electric, H. H. Peper, Pitts. 654,277; Lamp filler and measuring can, automatic, H. H. Venable. 654,580; Lamp, hydrocarbon incandescent, A. B. Macklin. 654,408; Lamp, incandescent, Washburn & Tinkham. 654,207; Lamp, incandescent electric, Washburn & Tinkham. 654,208; Lamp or burner, gas, H. A. Kent. 654,458; Lamp socket, incandescent, W. B. Braddon. 654,433; Lamp, vapor burning, Bradbury & Smith. 654,380; Lampblack machine, J. L. Mann. 654,111; Latch, door, W. H. Garlock. 654,242; Labels, duplicate, W. B. Johnson. 654,435; Letter box mail holder. See King. 654,237; Liquid mixer, E. T. Downing. 654,526; Lock. See Bicycle lock. Can lock. Cash lock. Lock, A. Picken. 654,322; Locking device for jail or similar doors, P. J. Pauly, Jr. 654,275; Loom for weaving tufted pile fabrics, Skinner & Connolly. 654,363; Loom harness stop motion, G. Mathieu. 654,172; Mail bag catcher, A. D. Carnagy. 654,223; Mail box, T. Gaskins. 654,534; Mail boxes to posts, fastener for attaching, H. N. King. 654,402; Mailing card, C. A. Grant. 654,536; Manufacturing device, J. Friedlander. 654,147; Mattress, pneumatic, J. A. Berger. 654,430; Measuring machine, cloth, T. J. Cloud. 654,229; Measuring machine, liquid, W. H. Cook. 654,411; Meats, preserving, F. W. Bright. 654,563; Mechanical movement, Herod & Detwiler. 654,153; Merry-go-round, J. W. Hile. 654,154

(Continued on page 78.)