

Business and Personal.

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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 This is for our information and not for publication.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.
Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.
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.

(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. Take the lens off from the camera, put in its place a piece of card through which a small hole has been made and you will see the picture inverted in the same way. The rays from the top of an object pass in a straight line through the hole and must go to the bottom of the ground glass. So too rays from the bottom of an object go to the upper part of the ground glass. The picture is inverted up and down and right and left. 2. Are there any cameras on the market, that have devices so that the image appears right side up? A. No. A right angled prism could be attached to the lens so as to erect the picture, but it is not worth while. 3. What solution combined with a solution of ferric chloride will make a green solution? A. Ferric chloride in solution will become green by combining it with any solution of a sulphate which by metathesis will produce ferric sulphate. 4. Is there any book on navel orange growing? A. The SCIENTIFIC AMERICAN, vol. 82, No. 21 contains an article on the navel orange. We can send it to you for ten cents.

(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. Is there anything I could add to it for the purpose that would not destroy its transparency? A. Retouching varnish, Sandarc 1 oz., Castor oil 80 grains, Alcohol 6 oz.

(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. A. Scratch the face of the pulley with a rough file thoroughly, so that there are no bright or smooth places. Then swab the surface with a solution of nitric acid, 1 part; water, 4 parts; for 15 minutes; then wash with boiling hot water. Having prepared a pot of the best tough glue that you can get, stir into the glue a half ounce of a strong solution of tannic acid, oak bark or gall nuts, as convenient to obtain, to a quart of thick glue; stir quickly while hot and apply to the paper or pulley as convenient, and draw the paper as tightly as possible to the pulley, overlapping as many folds as may be required. By a little management and moistening of the paper, it will bind very hard on pulley when dry, and will not come off or get loose until it is worn out. Use strong hardware wrapping paper.

(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. In parallel it will give 1.8 volts. The amperes depend upon the external resistance principally, since the internal resistance is very small. You can safely take 4 amperes. 2. How long can this battery be used without decreasing in strength? A. Any battery begins to be exhausted as soon as it begins to do work, of course. You will obtain about 60 ampere hours from the battery, before renewing the solution. The zincs will last a long time, the carbons indefinitely. 3. What would the materials for this battery cost (approximately)? A. If you can make the case, windlass, etc., the cost is much reduced. The jars, plates, and other materials, will cost about \$15. 4. Directions for making a small and inexpensive Ruhmkorff induction coil giving a 1 inch spark, for use with the two chromic acid cells? A. You will find the directions, full instructions with drawings, in Bonney's "Induction Coils." Price by mail, \$1. The coil described in "Experimental Science" is a good one, and gives a longer spark. It will cost but a little more than one giving an inch spark.

(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. A. Steel balls in the ordinary sense of the word have not been used in the coherer of the wireless telegraph so far as we are informed. The coherer contains a powder, composed of metal filings. Various metals have been employed simple or mixed. Any powder, even of a conductor, is a very poor conductor. The principal reason is that the particles are not in close contact with one another. When an electric wave strikes this powder, its electrical resistance is very greatly reduced, as if the particles had cohered. This state continues till a jar is given to the powder, when the high resistance is restored. See Fahie's "History of Wireless Telegraphy." Price \$2 by mail.

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. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

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 patent numbers and names of inventors. Includes items like Acid and making same, formic aldehyde compound, Ankle brace, Armature oil guards, etc.

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Table listing various mechanical and electrical parts with prices. Includes items like Cotton piece goods, Sharp, Coupling, Cover and binder, Cultivator, Current motors, Currycomb, Curtain fixture bracket, Cutter, Cyanids, Cycle motor, Dichloro-oxypurin, Display forms, Distribution system, Door bolt, Door check and closer, Door check and closer, Door closer and check, Door stop, Drill, Dye and making same, Dye and making same, Dye and making same, Dye from anthracene blue, Egg case filler frame, Electric furnace, Electric heater, Electric metering system, Electric motor controlling apparatus, Electric motors, Electric switch, Elevator, Elevator safety gate, Engine, Engine tie, Engines, Envelop, Expanding apparatus, Expansion drill, Eyeglasses, Fastening device, Feed cutter blower, Feeder, Fence, Fence machine, Fifth wheel, Filter, Firearm, Fire escape, Fire escape, Fire extinguisher, Fire hose, Fireproof window, Flat iron holder, Flooring, Flooring clamp, Fine cleaner, Flue stopper, Fluid pressure regulating device, Force blast elevator, Fountain, Furnace, Furnace, Furnace fuel feeding mechanism, Furnace hold, Furnaces, spraying attachment for steam boiler, H. E. Parson, Fuse, electrical safety, Fuse for explosive projectiles, Garment hook, Gas generating apparatus, Gas generator, acetylene, Gas lighter, electric, Gas meter, Gas or petroleum motor, Gas producer, Gas regulator, automatic, Gate, Generator, Glass articles, apparatus for forming hollow, Glass, production of marbled surfaces upon, Gold from cyanide solution, metals, extracting, Governor, speed, Grain binder, Grain drill, Grain scourer, Graphophone, Grate, fire, Grinder, Grinding machine, Grinders and gripper extension rods, slide fastening for, Guns, apparatus for ramming charges of, Guns or barrette, Dawson & Horne, Guns with explosive charges, apparatus for supplying turret or barrette, Dawson & Horne, Gun-cotton press, Gun fastener, Handle, Handle fastening, Handle for converting kerosene tins, etc. into buckets, Hanger, Hanger, Harrow truck, Hat, apparel, Hay and stock rack, Heater, High speed engine, Hinge, spring, Hook and eye, Hook sprayer attachment, Hot draught system, Hub attaching device, Hub, vehicle, Ice, facilitating formation of, Ice house, Ice making apparatus, Indicator, Induction coil, Ironing machine, Jars, bottles, etc., device for packing, Jewel, etc., Jewels, etc., Jewels setter, roller, Journal box, Junction or connection box, Knitting machine, Knitting machine, circular, Label, duplicate, Ladder, folding or flexible, Lamp, R. M. Dixon, Lamp, acetylene gas generating, Lamp burner, Lamp, carbureting, Lamp, electric, Lamp filler and measuring can, automatic, Lamp, hydrocarbon incandescent, Lamp, incandescent, Washburn & Tinkham, Lamp, incandescent electric, Washburn & Tinkham, Lamp or burner, gas, Lamp socket, incandescent, Lamp, vapor burning, Lampblack machine, Latch, door, Lath, duplicate, Letter box mail holder, Liquid mixer, Lock, See Bicycle lock, Can lock, Cash lock, Lock, A. Picken, Locking device for jail or similar doors, Loom for weaving tufted pile fabrics, Loom harness stop motion, Mail bag catcher, Mail box, T. Gaskins, Mail boxes to posts, fastener for attaching, Mailing card, Manifold device, Mattress, pneumatic, Measuring machine, cloth, Measuring machine, liquid, Meats, preserving, Mechanical movement, Merry-go-round.

(Continued on page 78.)