



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 this 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. E. asks: When will a crosscut saw straight on the bottom cut the faster—when drawn straight across the log, or by giving it a rocking motion? Why are crosscut saws made round on the bottom instead of on top? What is the cheapest power for a small country work shop? A. A crosscut saw is made bowing to make it cut faster and to accommodate the wear by sharpening. A saw worked by hand naturally rocks a little, which is advantageous. The cheapest reliable power is steam, unless you are situated so as to have water power. A windmill is good and cheap as far as it goes.

(2) G. P. W. writes: 1. I want to elevate water (about 600 gallons daily) 35 feet to a tank. What is the cheapest and best means to employ? A. Any house force pump will answer your purpose. 2. How should a tank be built when placed in the second story of a dwelling, so as not to leak? A. The best tanks for houses are what are called staved tanks, made of pine or cedar, like a churn, on a taper, with the hoops driven downward. Any carpenter can make them. Box tanks are often used, but are not as reliable as staved tanks. 3. In putting in a furnace for heating a dwelling, should the smokepipe enter the chimney at once, or could it run horizontally 12 or 15 feet as well as not, and be inclosed in a hot air flue connected with a register above, and would it pay to do it? A. If your chimney has a good draught, there is no objection to carrying the pipe 12 or 15 feet and covering with a warm air chamber. If you have a heater that has a large radiating surface in proportion to grate, the pipe should not be hot enough to pay for inclosing, as a source of heat to supply a register. 4. How should a chimney for a furnace be built, and how large? A. The ordinary chimneys of dwellings are generally large enough for heaters. No chimney flue should be less than 8 inches square—8 inches by 12 inches would be best.

(3) O. S. F. asks if it would be safe to run a three-quarter inch common pipe into the firebox and out again; pipe bent in shape of a yoke. Steam is then carried about fifty feet from boiler. I wish to get as dry steam as possible. I use it to steam carpets, feathers, hair, etc. If it is a safe plan, please tell me the best way to arrange it. A. It need not be dangerous, except you carry a high pressure, which you do not want. You want superheated steam, which you can have with low pressure. The way you propose to arrange the pipe is very well, but there must be a constant current of steam through it, or your pipe will soon burn out.

(4) J. K. H. writes: I am using a canvas belt for polishing up whiffletrees. I find difficulty in making the quartz adhere to the canvas. I have been using common glue. Is there any kind of cement that would answer the purpose better than glue? A. There is no cement that is equal to the best glue for sand belts. Common glue is poor stuff for any use. Use only the best quality of light brown glue, and select it yourself. By bending a few pieces in your hands, the weak, brittle glue will break easy and fly; the strong, tough glue will bend with difficulty, and finally splinter and not fly into pieces.

(5) R. S. F. asks: 1. When two induction coils are arranged so that the secondary current from the first shall traverse the primary wire of the second, is a break necessary, or will the secondary current induce currents like itself? A. No break is necessary in the second coil, as the secondary current is intermittent and alternating in its character. 2. Is the current thus induced in the second coil stronger than if the same battery power were used direct to it? A. No; it is of higher potential; but the quantity will be small. 3. How long a Geissler's tube will a coil giving a spark one-eighth inch long illuminate? A. Six inches.

(6) J. M. writes: I contend that if a person jump up perpendicularly from the rear platform of a freight car, shielded from the wind by the back of the car, that he will come down in the same place from which he jumped. My opponent disputes it. A. Theoretically he would not come down in exactly the same place, but practically, under your conditions, he would. In reality he loses an infinitesimal part of his forward velocity during the time he is not on the platform.

(7) W. T. asks of how much advantage is "lead" on a locomotive's valves. A. Lead is necessary to the smooth working of the engine. It furnishes an elastic cushion to absorb the momentum of the reciprocating parts, and gradually taking up all the "slack" of the joints and connections. By this means, also, the piston has the full pressure of the steam at or slightly before the change in its direction of movement.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending February 6, 1883, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, New York city, N. Y. Also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications, not being printed, must be copied by hand.

Table listing inventions with names and patent numbers. Includes items like Absorbent pad, Air apparatus, Air cooling apparatus, Album for photographs, Animal trap, Annunciator, Automatic gate, Axle box, Back rest, Bag holder, Bag machine, Baling press, Bar, Barrel head cutter, Barrel heater, Barrel rack, Base-burning boiler, Battery, Batting, Bed bottom, Bed, Bed sofa, Bedstead fastening, Belting, Berth-lock, Block, Board, Boiler, Boiler furnace, Boilers, Bolt, Bolting reel, Book holder, Boot and shoe insole, Bottle stopper, Box, Bracelet chain, Brake, Brake setting apparatus, Breaking-down shovel, Breast strap hook, Brick and tile moulding machinery, Brick machine, Brick moulds, Brick preventing saltpeper exudations, Brick, tile, etc., ornamentation, Brush, Brush protector, Building, Burner, Button collar, Cakes, Calculator, Cans, Car brake, Car coupling, Car door, Car hand, Car signal, Car starter, Car stock, Car wheel boring, Car wheel tires, Cars, Carriage spring, Carriage window cushion, Cart, Cartridge shells, Case, Cement, Center board, Centering gauge, Chair, Chairs, Chandeller holding attachment, Checkrow, Chlorine and sodium, process of, Chopper, Chuck, Chuck, tenon and turning, Churn, Churn mechanism, Clamp, Clay reducer, Cleaner, Clock system, Cloth napping machine, Clothes pounder, Clothes reel, Coal hod, Coat and cloak hook, Coffee drying apparatus, Coffee roaster, Coffee separator, Collar, horse, Colors on cotton fabrics, Confectionery icing machine, Congelation of water, Guthrie, Cooler, Cornice window, Corset, Corset, S. B. Ferris, Cotton chopper, Coupling, Coupling link, Crate for transportation of window and plate glass, Culinary heater, Culinary vessel, Cultivator, Cultivator shovel, Cupola furnace, Card cutter, Curtain roller, Cushion, Cut-off, Cutter, Groove cutter, Cutting machine, Dental chair, Dental plugger, Die, Dish or basket, Door, Door hanger, Door lock, Door spring, Door spring, I. W. Moore, Drill, Dropper and check row attachment, Duster, Egg preserver, Electric circuit wires, Electric current regulator, Electric machine, Electric machine, dynamo, Electric machine, dynamo and magneto, Electric machine, dynamo and magneto, C. A. Seeley, Electric machine governor, Electric machine regulator, Electric machine regulator, dynamo, Electric machines, commutator for dynamo, Electric switch board, Electrical conductor, Electrical switch board, Elevator, Emery wheel for sharpening saws, Engine, Evaporative cooler, Eyeglasses, Fare register, Fare register and recorder, Fence, Fence, J. L. Sullivan, Fence wire, Fermenting vessels, Fertilizer distributor, Fertilizer distributor, Firearm, Fire escape, Fire escape, Fire escape ladder, Fire extinguisher, Fire extinguishing and alarm system, Fire kindler, Flour bolt, Flourmills, Flush valve, Folding chair, Frame, Furnace, Spoke burning furnace, Gag runner, Gauge, Galvanic battery, Gas brackets, Gas burner, Gas burners, base for, Gas engine, Gas exhauster, Gas lighting burner, Gas lighting burner, electric, Gas lighting regulator, Gate, Glass beveling machine, Grain cooler and drier, Griddle, Groove cutter, Gun, Gun, machine, Guns, auxiliary rifle barrel for, Guns, extractor for breakdown, Handle, Hammer, Hammer, bush, A. Nelson, Hammocks, spreading stick for, Harness, Harvesting machine, Harrow and cultivator, Harrow tooth clamp, Harvester cutter bar, Harvester sickle bar, Harvester traction wheel, Harvesting machine, Hat blocking table, Hay and grain unloader, Head block, Heater, Heel iron, High and low water indicator for steam boilers, Hinge, Hitching post, Hod elevator, Hoisting buckets to belts device for attaching, Hoisting machine, Holder, Holder, See Bag holder, Book holder, Lead and crayon holder, Hook, See Breast strap hook, Coat and cloak hook, Whiffletree hook, Hoops from poles, machine for sawing, Hose carriage, Ice chambers, guard for excluding air from, Ice cream, etc., non-heating conducting envelope for, Incumbustible, rendering organic substances, Incubators, electric regulator and alarm for, Indicator, See High and low water indicator, Station indicator, Stock indicator, Ingots and apparatus therefor, production of, Insulator, electrical, Iron, See Heel iron, Ironing board, Ironing board support, Jack, See Lever jack, Lifting jack, Jewelry mounting, Kegs and barrels, tool for working off, Knife cleaning machine, Ladder, step, Lamp coupling ring, Lamp, electric arc, Lamps, manufacture of incandescing electric, Lathe cutters, apparatus for grinding, Latherest, Lead and crayon holder, Leather blacking, dressing, and finishing apparatus, Letter box, Lever jack, Life preserver, Lift safety, Lifting jack, Lifting jack, J. O. Joyce, Light, See Oven light, Lightning rods, tripod standard for, Liguors apparatus for treating fermented, fermentable, and distilled, Lock, See Berth lock, Door lock, Nut lock, Seal lock, Lock, S. P. Stoddard, Lock, J. P. White, Lock nut and bolt, Lunch case, Mail conveyer, Mash heating and cooling device, Match igniter, Matrix drying press, Measuring machine, Mechanical movement, Medical compound, Metallic pipe, machine for making spiral-jointed, Middlings purifier, Mill, See Windmill, Millstone dressing machine, Millstone driver, Money strip, gummed, Motion, apparatus for starting, stopping, and reversing rotary, Mowing machine, Motor, See Oscillating motor, Nail, W. G. Howell, Nails, making brass headed, Nut lock, Nut separator, Oilcloth, etc., machine for ornamenting and cutting, Oils from vegetables, etc., manufacture of, Oleaginous matter from animal and vegetable substances, extracting, Ore and mineral separator, Ore washer rake, Organs, pneumatic action for, Oscillating motor, Oven, baker's, Oven light, baker's, Packing, metallic rod, Pad, See Absorbent pad, Pad tree and harness saddle, Paint, detergent or compound for removing, Pan, See Scale pan, Pantaloen protector, Paper box, Paper stock, treating, Pastry board, Pen and pencil rack, Pencil case, Photographic cameras, plate holder for, Photographs, process of and apparatus for coloring, Pick, W. Cook, Pick, miner's, Picture hanger, Pile, iron and steel, Pin, See Safety pin, Pin package, Pipe, See Water, gas, and drain pipe, Pipe wrench, S. A. Bostwick, Planter, check row corn, Planter, check row corn, L. A. Lusk, Platform spring, Plow, C. Hanson, Plow, E. D. Meagher, Plow point, W. F. Baldwin, Post, See Hitching post, Potato digging and separating machinery, Press, See Baling press, Matrix drying press, Punching and drawing press, Press, Willey & Rollins, Prison-cells, armor for, Protector, See Brush protector, Pantaloen protector, Pump, G. F. Blake, Pump and preserver, beer, E. Sharfenberg, Pump, double-acting, French & Shenton, Punching and drawing press, J. Gardner, Putty, commercial, R. W. Davis, Quilting frame, H. T. Davis, Quilting frame for sewing machines, H. T. Davis, Rack, See Advertising card rack, Barrel rack, Radiator, steam, H. Macdonald

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