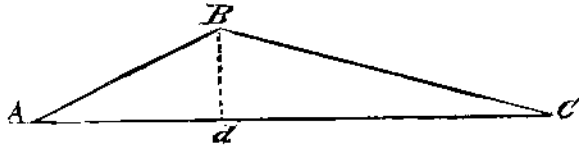


Moles & Queries

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 This is for our information, and not for publication.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

(1) T. H. & W. S. ask for the rule for determining the power exercised by an elbow joint press. A. Let A B C be the elbow joint system. Measure the distances A C, A d, and d B. These will of



course vary for every position of the press. Then to obtain the end pressure use the following formula, in which R denotes the pressure, and P the power applied at B in the direction B d.

R = P * (d C / A C) * (A d / d B)

If the arms A B and B C are of equal length, the formula reduces to R = P * (A d / 2 d B)

(2) H. N. asks the quickest and best way to drill holes for water pipes in rough plate glass. A. Use a hardened (file temper) drill, with spirits of turpentine and camphor to make the drill bite. A broken file in a breast brace will do good work if a power drill is not obtainable.

(3) W. H. H. asks if old putty in old window sash can be softened so as to be easily taken out. A. Take 1 part American pearl ash, 3 parts stone quick lime; slake the lime, add the pearl ash, and bring the whole to the consistency of paint. Apply it to the sash, and let it remain for 12 hours, when the putty will be softened.

(4) J. B. C.—The polar position of the sun has not yet been exactly located. Its approximate polar point among the stars may be assigned, but is of no value in astronomical work, and is not mentioned in books.

(5) C. H. K. writes: I have a bell weighing probably 1,000 pounds, that has cracked from the mouth or rim upward some 14 inches. Can I save it and retain its original tone by drilling at end of crack and sawing out? A. Drill a quarter inch hole at the end of the crack, and saw the crack open, so that the vibrations will not produce a contact of the edges. This will change the tone of the bell. It must be struck on the opposite side from the crack.

(6) H. P. S. writes: I have in use a number of paper lamp shades for coal oil lamps which are yellow and sooty on the inside, but otherwise good. Is there any white composition with which I can paint the inside so as to increase the reflection? A. An oxide of zinc paint might be used. Cannot white cardboard be pasted on the inside of the shade?

(7) M. W. C. asks: 1. How can I take the rust from a tin lantern and make it bright? A. If the rust is not too deep, it can possibly be removed by treating with kerosene oil, or mix the oil and rub with a little rouge. 2. I have an electric lamp, and every few nights after putting it out the chimney breaks. Can you tell me how to prevent it? A. Anneal the glass by putting into cold water and gradually heating until boiling, then cool. 3. How can I flavor home made chewing tobacco and make it sweet? A. Use glycerine.

(8) E. D. A. asks the specific gravity of linseed and cottonseed oil. Also, the boiling degree, and probable adulteration. A. Linseed oil has a gravity of 0.9355, and boils at 600° Fah. The gravity of cottonseed oil is 0.9306. Both are extensively adulterated, the former with the latter, and also with resin oil, fish oil, and others. The percentage of adulteration can only be generally estimated.

(9) H. F. S. asks (1) how to wind an induction coil for a telephone, and if a telephone will work without one. A. The primary of a telephone induction coil is wound with No. 18 to No. 24 wire to a resistance of 1/2 ohm. The secondary is wound around this with No. 36 wire and a resistance of 80 ohms. A telephone will work without one, but not so satisfactorily for long distances. 2. What effect has an induction coil on a telephone line, and how is the difference effected? A. The induction coil generates a line current of high tension and small quantity, which is not affected by resistance to the same extent that a battery current would be. The result is effected by the inductive action of the primary on the secondary.

(10) O. P. asks which travels the fastest, light or electricity, and at what rate per second? A. Electricity under favorable circumstances has been found to travel at the rate of 288,000 miles per second. Light travels at 190,000 miles per second. Under less favorable circumstances, electricity travels with comparative slowness.

(11) F. B. asks how to make a paste harness blacking. A. Dissolve by heat 4 ounces glue or gelatine and 3 ounces gum arabic in 1/2 pint of water; add 7 ounces molasses and 5 ounces ivory black in very

fine powder, gently evaporate until of proper consistency when cold, stirring all the time. Keep in 4 bottles.

(12) S. S. H. writes: I want to find out the best wash or lotion for tightening the wrinkled skin on hands and face. A. Take of oil of almonds 4 ounces avoirdupois, hog's lard 3 ounces, spermaceti 1 ounce; melt, add of expressed juice of horse leek 3 Imperial fluid ounces, and stir till the mixture solidifies by cooling. A few drops of lavender or eau de cologne are added to scent the mixture.

(13) W. L. R. asks how to make a powder for silver plating. By simply moistening it, it gives a good plating. A. Mix 1 part chloride of silver with 3 parts pearl ash, 1 1/4 part common salt, and 1 part whiting, and rub the mixture on the surface of brass or copper (previously well cleaned), by means of a piece of soft leather or a cork moistened with water and dipped into the powder.

(14) W. I. asks: How am I to separate the gelatine contained in meat? For instance, I take a certain quantity of beef, and boil it down; How am I to get rid of the gelatine in the concentrated product? A. On a small scale, the gelatine can be precipitated by alcohol, or for manufacturing purposes see the U. S. Dispensary under title of extract of meat, where the entire method of manufacture is given.

(15) C. De V. asks how bottlers fine their liquids so that they will not be cloudy. A. For this purpose 1 ounce isinglass is put into 1 quart weak vinegar or, still better, hard beer, and when dissolved, a sufficient quantity of good beer may be added to make 1 gallon. This mixture is called finings, and 1 to 2 pints of it is the proper quantity for a barrel. When used for other drinks besides beer, dilute with the special drink which it is desired to fine. Bottling machinery and carbonic acid generators are made a specialty by a number of firms.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

May 17, 1887,

AND EACH BEARING THAT DATE.

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

Table listing inventions such as Alarm, Animal trap, Annealing furnace, Annunciator, Asbestine lead texture, Asphalt concrete, Atomizer, Automatic brake, Automatic switch, Awning, Axle nut attachment, Axle setter, Bag, Bag holder, Bag lock, Bag or pocket book frames, Balust, Bale tie hook, Baling press, Baling press, C. E. Whitman, Baling press, Poor & Wouff, Baling press and feeder, Balloons, means and apparatus for propelling and guiding, Bar, Bath tub, Battery, Bell cord coupling, Bench, Bengal lights, Binder, Blackleading machine, Blank depository, Blast apparatus, Blasting barrel for extracting tree stumps, Blocks, machine for cutting round, Bobbin or cop tube, Bolt, Bolt fastener, Bolt holder and cover, Boots or shoes, edge plane for trimming the sole edges of, Borer and reamer, Bracelet, Brake, Branding apparatus, Bridge gate, Brooch, Bucket, Buckle, harness, Willis & Cowen, Burner, Burning bagasse or other wet material, apparatus for, Button, Buttonholes, machine for stitching and cutting, Button machine, Button setting machine, Button stapling machine, Cable, chain, Calendar, indicating, Camera, Can, Can filling machines, automatic feeder for, Candy in bars or sticks, manufacture of, Car brake, Car brake, automatic, Car coupling, Car coupling, C. Lunt, Car coupling, J. W. Newton, Car coupling, J. Rawles, Car coupling, N. Solcer, Car coupling, N. E. Springsteen, Car heater, street, Car mover, E. Duplessis, Car, stock, A. G. Minges, Car windows, dust guard for, Cars, watering apparatus for cattle, Card holder, Card holder, G. M. Burgess, Jr., Carding engines, comb plate for doffer combs of, Carding machines, fleece dividing attachment for, Carpet stretcher, Carriage spring, Carriage top, C. Lawrence, Cart, road, A. L. Fellows, Cart, road, C. W. Jewett et al., Cartridge shells, implement for capping, Case, Case, See Measure case, Caster, furniture, R. Cloughton, Casting compound ingots, mould or apparatus for, Cement coated nail, Copeland, Chair, See Railway rail chair, Chair back support, W. J. Cowing, Check row attachment, J. W. Barber, Chimney, J. A. Hodel, Churn dasher, S. C. Harrison, Cigar box, L. Haas, Cigar rolling machine, O. Hammerstein, Cigar shaper, E. W. Seymour, Cleaner, See Railway track, frog, and switch cleaner, Clevis, E. I. Morey, Clock cover, W. C. Camp, Clocks, electric striking device for, S. C. Dickinson, Closet seat, W. Jacobus, Clothes bar, folding, D. M. Pickett, Clutch, G. W. Shamp, Coffin cap lifter, C. A. Bailey, Coin tray, C. E. Howe, Combination lock, G. R. Boyce, Commutator adjuster, automatic, E. Thomson, Compass and marine indicator, recording, R. W. F. Abbe, Compass, instrument for ascertaining the variation of the, H. Harild, Concentrator for artificial lights, H. H. Smith, Cooler for beer and other liquids, W. Sloppz, Cooling and condensing apparatus, E. Theisen, Cores, method of and apparatus for forming armature, F. Wynne, Cotton press, Meador & Carl, Counter seat, adjustable, F. W. Gowell, Coupling, See Bell cord coupling, Car coupling, Shaft coupling, Thill coupling, Crate, folding, E. B. Merritt, Crimping machine, J. W. D. Field, Cultivator and planter, combined, W. R. Parnell, Cultivators, attachment for wheel, W. R. Brown, Cup, See Grease cup, Cut-off, adjustable, W. F. Parish, Cutter, See Lawn cutter, Sheet metal scroll cutter, Cyclometer, M. H. Downes, Damper regulator for furnaces, stoves, etc.; automatic, C. L. Ridgway, Damping machine, F. L. & S. G. Goss, Dental engine, W. W. Grant, Dental flasks, etc., press for, M. M. Maine, Derrick, J. B. Wallace, Digger, See Potatodigger, Dish drainer, C. C. Cannon, Distilling wood, apparatus for, E. J. Burrell, Door hanger, J. Charlton, Door hanger, J. H. Lawrence, Door securer, H. F. Keil, Drawer, J. W. R. Johnson, Drawing table, Kidder & Long, Drawing table, T. W. Mann, Drug mixing machine, M. J. Jones, Ear stud, F. Wessel, Eaves trough angle or miter, L. M. Bowers, Electric generator, self-exciting alternate current, J. W. Easton, Electric lighting systems, indicator for, W. J. Hammer, Electric machine, dynamo, J. W. Easton, Electric machines, method of and apparatus for detecting short circuits in dynamo, J. W. Easton, Electric machine, safety contact brush for dynamo, J. W. Easton, Electric motor, alternating current, E. Thomson, Electric switch, E. Thomson, Electrical matting, A. H. Freeman, Electrical switch, W. J. Hammer, Electrotypes, blackleading matrices for, E. A. Blake, Elevator, G. M. Davis, Elevators, automatic safety appliance for, E. J. Shaw, Engine, See Dental engine, Steam engine, Engine, S. Robinson, Etching zinc and other metal plates, L. W. Kipp, Extractor, See Tobacco plug extractor, Eyeglass, M. C. Brackett, Eyeglasses, manufacture of cases for, W. B. White, Eyelet tape, W. Pretty, Jr., Farm gate, A. C. Baumwart, Faucet, weighing, T. J. Black, Feed rack, D. W. Shorter, Feeder, coagulant, J. W. Hyatt, Felt, manufacture of, A. Dolge, Fence and water gate, combined, T. D. Wilson, Fence, flood, P. H. More, Fence machine, G. J. Cline, Fence, metallic, W. W. Hamilton, Fence tightener, wire, L. A. Butts, Fence, wire, J. G. Schiller, Fertilizer distributor and seed drill, combined, D. Daniels, Fifth wheel, H. Harker, Filter, water, W. H. Cummings, Filtering, H. Stockheim, Fire alarm, A. W. Geer, Firearm, breech-loading, V. Bovy, Fire escape ladder, Hanes & Shaver, Fire extinguisher, J. Tonge, Fireplace and fue, portable, J. W. Cooper, Fish trap, J. M. Treat, Flowers from fur, manufacture of imitation, E. Friedlander, Flushing tank, T. H. Platt, Frame, See Photographic printing frame, Fruit gatherer, E. E. Evans, Fruit picker, B. M. Moyer, Furnace, See Annealing furnace, Gas generating furnace, Glass melting furnace, Welding furnace, Furnace, S. G. Lane, Furnace, J. Springer, Furnace, E. W. Tucker, Gauge, See Water gauge, Woodworking machine gauge, Game apparatus, O. N. Kyle, Garments, apparatus for cutting, E. Hood, Gas burner, J. Irwin, Gas device, safety illuminating, J. H. Musgrave, Gas generating furnace, H. B. Van Benthuysen, Gases, process of and apparatus for charging liquids with, G. Schenck, Gas regulator and cut-off, T. J. Kieley, Gate, See Bridge gate, Farm gate, Railway gate, Swinging gate, Toll gate, Gate, E. E. Hess, Gate, J. H. Uhle, Gate closer, W. B. Nelson, Generator, See Electric generator, Hydrocarbon generator, Glass melting furnace and regenerator, F. Heintz, Glassware, fancy, J. Webb, Glove fastener, S. W. Shorey, Glue, apparatus for evaporating and bleaching, A. J. Ward, Gold washing machine, H. G. Blodgett, Grader, road, H. G. Moats, Grain and seed, machine for gathering, L. W. Jr., & R. E. L. Leavell, Grain, etc., apparatus for torrefying, J. F. Fordred, Grain binders, knotter for, W. N. Whiteley et al., Grain binders, sheaf carrier for, W. Butterfield, Grain conveyer, portable, A. F. Carlson, Grain drill tube, T. R. Crane, Grain or cereals, preparing, J. Fordred, Grate, A. S. Newby, Grate and fire back for fireplaces, J. W. Wolfe, Grates and fireplaces, extension screen for, J. G. Smith, Grease cup, compression, D. H. McCarty, Gun barrels, device for cleaning, S. H. Heginbottom, Gun sight, G. W. Hadley, Halter, W. H. Wheeler, Halter trimming, A. B. Arnold, Hammock, V. P. Travers, Hammock support and canopy top, combined, T. Ferguson, Hanger, See Door hanger, Harmonica, A. P. S. Jones, Harrow, W. P. Bonham, Harrow, J. A. Morsman, Harrow, two-wheeled, Glass & Kimball, Harvester, G. H. Spaulding, Hasp lock, F. W. Mix, Hasp lock, J. Shaw, Hat felting machine, J. C. Grant, Heat, generating, T. H. Champion, Heater, See Car heater, Vehicle heater, Water heater, Heddle for cross weaving, C. A. Littlefield, Hides, machine for treating, Lichtenberg & Baloun, Hobby horse, Crandall & Snyder, Hoisting apparatus, C. R. Traxler, Hoisting bucket, B. F. Wilson, Holder, See Bag holder, Book holder, Card holder, Music and book holder, Music or paper holder, Pencil and crayon holder, Spool holder, Hoof trimming machine, R. Parrish, Hook, See Bale tie hook, Horse power for stackers, A. H. Hoffmann, Horseshoe, detachable, C. V. Geschke, Hot water heater, circulating, Owen & Fuller, Hydrocarbon generator and burner, J. McHale, Ice making and blocking machine, G. F. Knox, Incubator thermostat, C. L. Wells, Indicator, See Station or street indicator, Inhaler, R. B. Heintzelman, Initial ring, interchangeable, W. Meerbott, Injector, L. Schutte, Insulated electric conductors, covering, J. Tatham, Jack, See Lifting jack, Stone laying jack, Wagon jack, Joint, See Rail joint, Railway joint, Journal bearing, H. Brown, Knee pad and protector, A. G. Ridgill, Knitting machine needle, G. Malpass, Jr., Knockdown box, H. P. Huston, Label for packing cases, reversible, C. M. Benninghaus, Lace fastener, W. M. Brinkerhoff, Ladder, fire, L. Harris, Lamp chimneys, tempering, M. Schreiber, Lamp, oil, C. Colahan, Lamps, device for attaching and detaching electric, W. J. Hammer, Lamps, etc., suspension device for, J. D. Griswold, Lantern, F. Meyrose, Last, T. A. Kelly, Lasting machine, F. Chase, Lathe, watchmaker's, E. Rivett, Lawn cutter, H. L. Sprague, Leather skiving machine, J. N. Whitcomb, Level, spirit, J. Holly, Lever press, sector, G. W. Grader, Lifter, See Coffin cap lifter, Lifting jack, A. K. Bagwell, Lifting jack, J. A. Dill, Loading apparatus, P. H. Grimm, Lock, See Bag lock, Combination lock, Hasp lock, Nut lock, Lock for pocketbook or satchel frames, M. C. Schmidt, Loom heddle, C. K. Sawyer, Loom shuttles, thread guiding and tension regulating device for, J. C. Sergeson, Looms, reed supporting device for, O. S. Lee, Lumber piler, C. E. Dunshee, Mail bag fastener, S. A. Field, Measure case, tape, W. Keuffel, Mechanical movement, H. K. Whitner, Metals by the direct application of the electric current, process of and apparatus for working, De Benardos & Olszewski, Milk can cover, O. Smeader, Mill, See Rolling mill, Mirror, folding, P. Wiederer, Mitering machine, J. T. Criswell, Moulding machine, marble, Kiehle & Hatcher, Mortising machines, chain cutter for, C. H. Douglas, Mortising tool, F. V. Phillips, Moss, curing, C. F. Lottman, Motor, See Electric motor, Motor device, alternating current, E. Thomson, Mowers, grass receiver for lawn, H. H. Tapper,