

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 This is for our information and not for publication.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.

(7775) C. H. B. asks: What is meant by the repeater of a telephone, and why is it so difficult to construct? A telephone repeater is an instrument which will take up a message when it has gone as far as it can be heard on the line, and give it energy so that it can go as far again and still be heard as well as it was before. In other words, it is to double the distance to which a message can be sent. There is a "repeater" which is used to connect a metallic circuit to a grounded circuit. This is not difficult of construction and is not probably what you refer to in your question.

(7776) H. I. asks: What are the proportions of corrosive sublimate, sal ammoniac and water for the purpose of depositing a very thin coat of mercury on articles which do not plate readily? A. The proportions of corrosive sublimate and sal ammoniac for the purpose of depositing a thin film of mercury upon articles to be plated is not a matter of any great importance. Water will not dissolve much corrosive sublimate. You may let it take all it can. If the solution is strong, the coating of mercury will be deposited sooner than if it is weak.

(7777) H. B. writes: I am making an automatic circuit breaker for my battery plant, and I would like to ask a few questions in regard to the solenoid and the solenoidal coil. I want the solenoid to trip at 2 amperes; how is the coil constructed? What size wire shall I wind on the coil to be connected in series with the line? What shall I make the solenoid out of? A. Any calculations for an automatic circuit breaker would have very little value. The proper mode of procedure is to make the circuit breaker and then adjust the tension of the spring till the circuit is opened when the current has the strength you wish to set it for.

(7778) The A. & J. Co. writes: We believe there is in use a paper upon which brass will make a mark, something like a pencil mark. If you can tell us what this paper is, where it can be obtained, or who makes it, we will be greatly obliged. A. Paper prepared so that a brass pointer leaves a black mark on it. Dissolve 1/4 ounce pure sodium sulphide and 1/2 ounce sodium hyposulphite in 1 quart rain water; filter the solution, and with it uniformly moisten the surface of the paper; then dry the latter under pressure between clean blotting paper. We do not know where it can be purchased.

(7779) B. T. S. asks: 1. What are the temperatures of air and of the various gases when liquid? A. The boiling point of liquid air at the ordinary pressure is 312.6 degrees below zero Fah. Under the same condition oxygen boils at -297 Fah., and nitrogen at -317 Fah. The data for various gases can be found in Sloane's "Liquid Air," price \$2.50 by mail. 2. What is the distance in miles from the highest to the lowest points from the plane of the sun's equator reached by each of the planets? A. We have never seen these distances given in any astronomy. You can compute them from the mean distance of the planet and the angle of inclination of the orbit to the plane of the ecliptic. The formula is, perpendicular = base X tangent angle at base. The perpendicular is the distance in miles above the plane of the sun's equator, and the angle is the inclination of the planet's orbit. The mean distances and the angles are given in all astronomies. 3. Where can I purchase a reliable radiometer? A. A radiometer can be purchased from any dealer in physical apparatus. They are not expensive instruments.

TO INVENTORS.

An experience of 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 prices, which are low, in accordance with the times and 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 DECEMBER 19, 1899.

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

Table listing inventions and their patent numbers. Includes categories like Advertising and display card, Air compressor, Alloy, aluminum, Amusement apparatus, Animal trap, Ash pan, Assembling machine, Automobile, Bag, Bale band fastener, Bale tie machine, Bandage, Barrel handling device, Battery, Bed, Book covering, Book holder, Book, Boring machine, Bottle, Bottle stopper, Bottle washing apparatus, Box, Bracket, Brake, Brush, Burner, Button setting machine, Button, Car, Carriage, Cash register, Chain adjustment, Chair, Chopping machine, Cigar machine, Cigarette making machine, Circuit breaker, Clasp, Clock, Clock striking mechanism, Clock winding indicator, Clocks or watches, Coat rack, Coat closet, Corn husker, Corn husking and cutting machine, Corset, Cotton picker, Cotton press, Coupling, Cover fastener, Crayon holder, Cream separator, Cultivator, Curtain rod, Cushion making apparatus, Cutter, Cutting tool, Cycle, Decoy, Dental filling material, Dental plugger, Dentist's tools, Desk, Die.

Advertisements.

ORDINARY RATES. Inside Page, each insertion, - 75 cents a line Back Page, each insertion, - \$1.00 a line For some classes of Advertisements, Special and Higher rates are required. The above are charges per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may be advertised at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

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Table listing various mechanical devices and their prices. Includes items like Disinfecting device for water closets, Disintegrator, Dit ch check, Do or or gate banker, Dress shirt, Drill, Dust collector, Dyeing, Electric crane, Electric ground detector, Electric light circuits, Electric or other wire coupling, Electric transformer, Electric transformer, Electrical snap switch, Electrical transformer, Electrically driven spindle, Elevator, Elevator, Engine wheel traction, Equipment carrier, Faucet, Feed water heater, Fence wires, Filter, Filter, Fire escape, Fire escape, Fire extinguishing compound, Fire refuge, Fireworks body, Fish hook, Floor surfacing machine, Flooring and ceiling, Flower pot molding machine, Fluid pressure engine, Folding chair, Folding gate, Fruit wrapping machine, Fulling mill, Furnace, Furnaces, nozzle for feeding fine fuel, Fur, Gauge, Gauge, Garbage crematory, Gas, Gas apparatus for collecting carbonic acid, Gas burner, Gas engine, Gas generator, Gas motor, Gas valve, Gases, instrument for recording variations in tension of, Gate, Gate, Gate, Gear, Gear, Generator, Glass grinding and polishing machine, Glass grinding and polishing machine, Glass pipe, apparatus for manufacturing, Go cart, Governor mechanism, Gramophone, Grass cutter, Graves, receptacles used in constructing, Grinding machine, Guns, apparatus for adjusting elevation of, Half-tone plate and making it, Hanger, Hammer, Hammer, Hand saw, Hanger, Harrow, Harvester, Heater, Heater, Heating and steaming device, Heel, Hem folding machine, Hides or skins, machine for treating, Hinge, Hinge, Hook, Horse breaking apparatus, Horseshoe, Horseshoe, Horseshoe, Hot air furnace, Hot air furnace, Hot air furnace, Hub securing device, Hydraulic press, Hydrocarbon burner, Incandescent mantles, machine for treating, Ingots, billets, etc., device for manipulating, Iron and steel, manufacture of polished, Iron or steel, producing phosphoric, Ironing board and ladder, Jar fastener, Joint, Journal bearing, Labeling machine, Ladder shelf attachment, Ladder, Lamp, Lamp, Lamp, Last for making overshoes, Last hanging machine, Latch, Lathe, Lead oxide, Leather snipping machine, Ledger, Lid and card holder, Lifter, Liquid dispensing can, Liquids, apparatus for drawing off fixed quantities of, Lock, Lock, Lock, Loom, Magnet, Magnet, Match making and boxing machine, Meat hanger, Merry-go-round, Metal drill, Metal working tool, Metal working tool, Milk test bottles, machine for shaking Babcock, Mill, Mill, Mine gate, Mining machine, Miter board attachment, Moistener and sealer, Mop, Motor, Mower grass catcher, Mowing machine, Mowing machine, Music leaf turner, Nail, Nut lock, Oil, apparatus for volatilizing and burning, Oil cup, sight feed, Oil from water, apparatus for separating, Oilstone box, Optical surfaces, machine for forming, Opulizer, Ore separator, Ore separator.

(Continued on page 428.)