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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 This is for our information and not for publication.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.

(6335) W. A. P. writes: We had erected in our office a natural gas stove, giving it a 3½ inch vent pipe; ever since there has been a continual dripping of fluid while the stove is lit. We trust you will be able to advise us with a remedy and explain the same. A. The gas in burning produces water. We would suggest the use of a tee at the lowest point of the vent pipe, with a small drip pipe leading thence outdoors. This should be bent into a trap near the stove and the vent pipe from the stove should pitch downward toward it. The presence of water indicates a cold chimney, which shows that the room is getting the heat, which is as it should be.

(6336) J. A. McC. asks: 1. Is there a single cylinder gas engine made to-day that receives an impulse at each stroke of the piston, or two to the revolution? A. Double acting gas engines have been made, principally in England and in France, and some are still in use. There are some difficulties in the operation of this class of engines that have placed the single acting engines in the lead. 2. What is the best proportion per volume of gasoline gas and air for the best results in gas engines? A. The best and most economical mixture is 1 part gasoline vapor to 10 parts of air. 3. If a jet of air and one of gas be admitted into a cylinder at the same instant from opposite sides, in such a manner as to strike each other with considerable force, will they mix sufficiently well to explode in contact with an electric spark, and will such an explosion take place with a considerable degree of certainty if the mixture come in contact with iron at a good red heat? Also at what heat may iron be under such circumstances and the gas be free from danger of explosion while under compression? A. The practice is to admit gas and air at any convenient point. They will ignite by electric spark or by a heated tube into which the mixed gases are compressed. The tube to be at a full red heat. Will not explode at a black heat. 4. To what extent is a charge of gas and air compressed at the moment of explosion in the most economical engines? A. There are engines with and without compression of the mixed gas and air. Compression may be from 5 to 10 pounds. 5. What can you say in regard to the relative efficiency of the tube and electric spark as an exploder? Also with reference to safety and economy? A. The electrical ignition system claims high efficiency in the uniformity of explosive effect. 6. Is there a work on the gas engine that would be of real, practical value to a tyro, and if so, what is it? A. There are two excellent works on gas engines. Robinson's "Gas and Petroleum Engines," $5.50, and Donkin's "Gas, Oil and Air Engines," $6.50 by mail. 7. Do you think it possible to drive a catamaran whose hulls are 15 inches wide, having sharp lines, round knuckles and flat bottom, 28 feet long, drawing 7 inches of water, at a speed of 12 miles an hour on dead water with a paddle wheel placed between the hulls? If so, at what position in the length of the hulls should it be placed, and what should be the length and width of bucket and what diameter and speed should the wheel have? A. The speed of 12 miles per hour may be obtained; but with the difficulty of overloading the boat with the weight of engines and wheel, 9 to 10 miles may be attained. Wheel should be two-thirds the length of hull from bow. Wheel 6 feet diameter, 4 feet wide.

(6337) C. A. C. asks: 1. What is the safe carrying capacity of No. 30 silk-covered copper wire, such as is used in telegraph relays (in amperes)? A. 0·15 to 0·20 ampere if wound in a tight coil. 2. What should be the carrying capacity of fusing wire to protect the same (in amperes)? A. About the same as given above, for they are very safe figures. 3. Also, how can telephones be used on a telegraph line about 1,500 feet long, with three stations on same? We use ordinarily the telegraph line, but wish to use both telegraph and telephones together. The batteries are located as follows: Three at one end and five in the middle. How can it be arranged so that either end may call the middle station (using the telegraph instruments for a call), and the middle station be arranged so that he may switch his telephone on to either section of the line, leaving the other end out or grounded? A. Use back contact keys at middle station, with ground connections there. 4. Also will telephones work through the five batteries without any trouble? A. The batteries will not prevent the telephones from working.

(6338) G. A. D. asks: Does the sun move? Is this earth perfectly round, or is it flattened at the poles? If so, how is it proved? A. The sun moves in space toward the constellation Hercules at the rate of about 16 miles per second. In this sense it moves. It also moves by revolution upon its own axis. The apparent daily motion of the sun through the heavens is not a real movement, but is an optical effect upon our perception, due to the revolution of the earth upon its own axis. The earth's form is a spheroid of revolution, as is proved by measures upon the meridian with their terminals compared with observations for their latitude. Also by the force of gravity, as deduced from the varying lengths of a pendulum at different latitudes for a given time beat.

(6339) C. H. H.—No one has the right to make a patented article for his own use without the consent of the patentee.

(6340) H. A. W. & Co. say: In Notes and Queries of SCIENTIFIC AMERICAN of December 1, J. J. H. asks, "How high above level of its source will an ordinary hydraulic ram raise water?" You answer from 100 to 200 feet. About two years ago we put in a Rife's ram (advertised in your paper). With this ram we raise water to our farm 243 feet high, pipe line 4,360 feet long; our feed pipe to ram is 500 feet long, 5 inch pipe and 11 feet fall, and gives us 60 gallons per hour and sometimes runs up to 90 gallons.

(6341) R. L. H. asks: 1. In what number or numbers of the SCIENTIFIC AMERICAN SUPPLEMENT can I find directions for making instruments for the measurement of the following: Volts, amperes, ohms, and watts? A. See our SUPPLEMENT, Nos. 353, 398, 423, 440, 552, 556, 563, 603, 604, 618, 734, 811. 2. How many cubic feet of gas can be obtained from 1 gallon of water by the electro analysis process, and how long would it take to decompose it with 20 amperes, if I use 1 square foot for each electrode? A. About 157 feet hydrogen and 78 feet oxygen, requiring about 1,000 hours. The size of electrode is a superfluous statement. 3. Are gold and platinum the only metals from which I can catch the gases separately? If not, please mention other cheaper ones. A. You can use iron or copper in a solution of caustic soda. 4. What is the fractional horse power of the motors described in SUPPLEMENT, Nos. 761 and 641, and how many volts and amperes does each require? A. No. 761 is about one-thirtieth horse power, No. 641 is about one-tenth horse power. 5. How many volts and amperes does the dynamo in SUPPLEMENT, No. 161, give? About 12 volts and 1½ amperes. 6. How can I calculate the candle power of a lamp? A. Allow 3·1 watts per candle power. 7. With 10 volts and 5 amperes, can I make an induction coil that will give 50 volts and 100 amperes? If so, how? A. No. It would involve creation of energy.

(6342) P. C. T. asks: 1. What make of storage battery can you recommend for charging by gravity cells? A. For storage batteries address some of the dealers who advertise in our columns. 2. What occurs if circuit is closed without cutting out gravity batteries? A. The storage batteries keep on receiving their charge; the circuit is necessarily closed when charging. 3. What causes buckling of plates? A. Too rapid a discharge. 4. What capacity should they be for cauterizing purposes—how many volts and amperes are most practicable? A. This depends entirely on the length and size of the cauterizing wire or instrument. 5. What is the difference between a galvanic and faradic current? Johnson's Cyclopedia states magneto and secondary currents from induction coils are faradic, and yet we read of galvanic medical batteries. A. Johnson's Cyclopedia is correct. In medicine it may be desirable to use a galvanic current.

(6343) L. A. F. asks: 1. How can the danger resulting from the falling of a private telephone wire onto a trolley wire be avoided? A. By guard wires placed over the trolley wires, or by good insulation on the telephone wire. 2. In case of its falling onto the trolley wire, is there any danger to building upon which it is strung? A. There is a certain amount of danger, but the high resistance of the telephone apparatus is to some extent a safeguard. 3. Is there any easy way to remove the crystals that form in a bichromate of potash battery? A. Immerse completely in a tub of water and then place the cell on its side with its bottom raised, as by resting on a brick, or completely invert it. It must be kept full of water.

(6344) W. S. asks: When sailing from New York to Montevideo does the compass point toward the south magnetic pole after crossing the equator? A. The compass is not reversed in crossing the equator. Its south pole points to the southern magnetic pole, with variations due to the lines of magnetic declination. The only change that requires adjustment is the dip of the needle, as in north latitudes the north end of the needle must be counterbalanced for the dip, which must be changed or reversed in southern latitudes.

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Tire, bicycle, F. M. Ashley 531,608
Tire for bicycles, pneumatic, A. C. Davidson 531,436
Tire, pneumatic, C. H. Roth 531,335
Trap. See Animal trap.
Trolley, G. A. Newhouse 531,383
Trolley, C. E. Powell 531,331
Trolley catcher, P. T. Milloy 531,380
Trolley wire bracket, Kline & Westhafer 531,437
Trough, A. W. Haag 531,527
Truck, church, N. T. Shaw 531,471
Truck, electric car, W. Sutton 531,575
Truck, logging, W. Brough, Jr 531,503
Truck, spring bearing car, W. Sutton 531,574
Trucks, flexible gear for electric car, Wessel & Egger 531,351
Truss, L. A. Smith 531,343
Tug, shaft, A. E. Hart 531,529
Type distributing apparatus, C. F. Hilder 531,531
Typewriting machine, A. Lowe 531,321
Typewriting machine, M. A. Wier 531,352
Valve, Schrader & Kraft 531,392
Valve, automatic check, J. H. Dousman 531,304
Valve, balanced steam actuated, W. F. Browne ... 531,434
Valve for percussion rock drills, A. W. & Z. W. Daw 531,587
Valve gear, steam engine, M. B. Cope 531,409
Valve, water gauge safety, J. Ruddy 531,387
Vaporizing petroleum or other liquids, apparatus for, S. C. Peuchen 531,560
Vehicle draw bar, R. Whalon 531,454
Vehicle seats, device for supporting, E. Selen ... 531,339
Vehicle wheel, C. von der Heyde 531,311
Veneer curling machine, J. Tomlinson 531,604
Vessels, means for raising sunken, W. A. & F. E. Turner 531,485
Wall coating and manufacturing same, Walker & Carver 531,579
Washing machine, W. Sweet 531,576
Watch bow fastener, E. J. Swedlund 531,480
Watchcases, etc., tool for ornamenting, Wilhelm & Ecaubert 531,455
Watchmaker's length gauge, H. J. Cogswell 531,435
Water closet coupling, J. Porteous 531,425
Water column, J. N. Poage 531,588
Weeding and root pulling implement, T. L. Smith 531,449
Wheel. See Carriage wheel. Vehicle wheel.
Wheel, J. G. Keith 531,618
Wheels, method of apparatus for counterbalancing, S. M. Vauclain 531,487
Windmill brake, J. H. Miller 531,420
Windmills, pump gear for, A. S. Erickson 531,523
Windmills, transmitting gear for, F. J. Brown et al 531,504
Window casing, H. J. Oliver 531,326
Wrench. See Pipe wrench.

DESIGNS.

Badge, J. F. Keller 23,8 4
Battery case, W. Morison 23,916
Bottle, C. Gulden 23,892
Bottle, C. H. West 23,891
Bowl and slab, wash, J. H. Gavin 23,894, 23,895
Box, F. W. Barthman, Jr 23,897
Box, wooden, F. J. Edgars 23,896
Cabinet, J. G. Schumm 23,907
Carpet, A. L. Halliday 23,889
Carpet, A. M. Rose 23,888
Chair seat frame, F. A. Dennett 23,905
Color plate, A. J. Morrow 23,913
Egg cup, W. R. Hill 23,898
Fabric, ornamental, H. S. Lawson 23,887
Finishing plate, R. H. Pratt 23,915
Fireplace, H. G. & W. R. Dawson 23,908, 23,909, 23,910
Flower stand, J. L. Symonds 23,906
Globe or shade holder, L. J. Atwood 23,893
Horse boot, F. H. Wood 23,920
Nut, J. G. & G. Lane 23,917
Paving block, W. F. Nepper 23,919
Picture frames, etc., moulding for, R. W. Aube ... 23,903
Picture frames, etc., moulding for, L. Lippi .23,902, 23,904
Pitcher, C. C. Wientge 23,890
Plate or similar article, C. E. Haviland 23,900
Radiator loop, C. F. Walther 23,914
Railway bulletin board, A. L. Johnson 23,918
Stove, heating, G. O. Bergstrom 23,911
Stove plate, G. E. Wilbur 23,912
Tablet machine standard, C. A. Tatum 23,921
Tray, communion service, E. J. Howe 23,901
Tray for counters, bottle and glass, R. Wittgenfeld 23,899
Trimming, F. A. Byram 23,885, 23,886

TRADE MARKS.

Beer, malt, S. Liebmann's Sons Brewing Company 25,716
Bicycles, tricycles, and other velocipedes, Singer & Co 25,746
Blind ladder tapes, J. Carr & Sons 25,742
Brushes and brooms, Actien-Gesellschaft fur Borsten-Industrie 25,753
Boots and shoes, Regal Shoe Company 25,743
Blood purifiers and tonics, W. R. Kennard .. 25,707, 25,708
Cane mill, sugar, F. C. M. Lautz ..... 25,748 to 25,752
Canned salmon, Alaska Packers' Association ..... 25,722 to 25,729
Carpet sweepers, Sweeperette Company 25,738
Cement, household, W. F. Appleby 25,730
Champagne, coca tonic, Veuve Laurent Cie 25,710
Cigars and smoking tobacco, A. Starkmann 25,732
Cleaning and polishing compounds, G. W. Cole & Company 25,733
Clothing for men and boys, outer, G. Bruck & Company 25,699
Coffee, Hoffman, Lee & Company 25,717
Cotton piece goods, Pelzer Manufacturing Company 25,704
Crackers, W. H. Daniels 25,718
Cutlery, tools, metal goods, and hollow ware, J. Pinder 25,741
Cycles, Witch City Cycle Company 25,745
Files for holding papers, box, W. A. Cooke, Jr 25,739
House furnishings, useful and ornamental, J. P. McHugh 25,737
Mustard and mustard products, J. & J. Colman 25,731
Oats, rolled, Stobie Cereal Mills 25,721
Paper bags, Union Bag and Paper Company .. 25,735, 25,756
Pie filling, T. E. Dougherty 25,719, 25,720
Poison for rats, Churchill Drug Company 25,709
Plasters, strengthening, Johnson & Johnson 25,705
Railway brasses and journal boxes and metals therefor, Magnolia Metal Company 25,747
Remedies, certain named, H. Clark 25,706
Ribbons, silk, E. S. Jaffray & Company 25,702
Sauce or relish for meats, soups, fish, and oysters, McKowen & McVea 25,736
Screwdrivers, Tower & Lyon 25,740
Slates, roofing, Old Bangor Slate Company 25,754
Stays, dress and corset, J. Janowitz 25,700
Underwear, certain named, Mattes & Lutz 25,701
Wall coverings, steam packings, and other goods made wholly or in part of asbestos, New Jersey Asbestos Company 25,743, 25,744
Waterproof cloth, firm of W. Wilford 25,755
Whisky, Belmont Distillery Company 25,714
Whisky, W. H. Jones & Company 25,713
Whisky, Joseph R. Peebles' Sons Company 25,712
Whisky, L. A. Wessel 25,715
Wines and liquors, J. B. Guttin 25,711

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