

Notes & Queries

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 the 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) D. D. L.—If the remedies for removing smoke from mica plates are not effective, try wiping them off with a soft sponge wet with alcohol or vinegar.

(2) C. L. asks for some information of the composition of glass, and if it will stand any weather hot or cold? A. The composition of glass varies according to the quality desired, and for any detailed information recourse must be had to the articles on the subject. These can be obtained in the various cyclopedias and technical dictionaries, Lippincott's, Spens', Ure's, etc. In a general way there are four varieties of glass: 1. The potassium calcium silicate. 2. The sodium calcium silicate. 3. The potassium lead silicate. 4. The aluminum calcium silicate. That it stands heat and cold is evident from our every day use of the article. The power of resisting changes in temperature is always heightened by annealing.

(3) F. E. writes: I find the statement made that whitewashing cast iron will prevent or rather diminish radiation. What then becomes of the heat which was radiated before the surface was white coated? Is it carried through the fire into the outer air, or is it still given off into the room? A. Carried through flues and other outlets. 2. Will it be advisable and economical to whitewash a school room stove? A. No; do not whitewash.

(4) J. L. C.—Paper cannot be made soluble in water. It can be reduced to a pulp or the same condition that it was in before being made into paper. It can be made plastic, as in the celluloid process by macerating with camphor and alcohol. It then becomes transparent under pressure, but does not return to its original consistence by exposure to air. Paper may also be made soluble by immersion in nitro-sulphuric acid, washed, dried, and dissolved in ether. This is the collodion of the druggists.

(5) C. H. D. asks: What is the composition of "regulus metal"? It is used in England for cocks and fittings at ammonia works. What other metal or alloy would best resist corrosion from ammoniacal liquor and be suitable for cocks and fittings? A. Marial regulus is an old English term for an alloy of iron and antimony; probably it may be this alloy that is used for cocks and fittings for ammonia works. We do not know of such being made in this country. Cast iron and steel are in general use in this country for ammonia and in ammonia works. These fittings, valves, and cocks are on sale in New York. Stoneware fittings, which are used to a great extent in England, may also be purchased in this country.

(6) J. B. asks if there is an artificial process of petrifying wood, and explain the process. A. Wood cannot be petrified artificially in the same manner as is done in the natural way, as that is by substitution of silica in place of the wood. Saturation of wood by soluble silica or water glass will make it hard, or it may be covered with a thin coat of mineral matter as is done in some mineral springs. The real petrifications are the work of ages.

(7) S. asks what is the best sand to use in making steel castings to make the surface smooth, and what is the alloy used called silicide of manganese, and what percentage do they put in steel? A. Crucible steel (cast steel) is cast into iron moulds. Bessemer steel castings are made in silicon or silica sand; ordinary sand will not stand. In converting iron into Bessemer steel, 0.80 of one per cent of manganese is added.

(8) C. A. M. asks: How are the figures and lines made on steel tapes? A. The lines and figures are printed upon the steel ribbons with asphalt varnish instead of ink. The tapes are then put in a bath of acid and etched to the required depth. For the bath use to one gill of acetic acid or good strong vinegar, 20 drops nitric acid. Time, five to ten minutes for light work.

(9) J. M. writes: I inclose a check—what is it made of? A. The check is Welling's compressed ivory, and its composition and mode of manufacture secret. 2. I also inclose a small piece of sheet zinc—what number is it, No. 25 American gauge? A. The zinc is No. 25 American gauge.

(10) H. S. writes: Cigarettes with a paper cover are sometimes tipped at the mouthpiece with a mucilage or gum which prevents the paper from sticking to the lips, and the mucilage or gum does not get dissolved by the moisture of the lip. Will the SCIENTIFIC AMERICAN tell me how to prepare this gum? A. The method followed by one of the largest cigarette manufacturers is dipping the ends into melted paraffine. The process and machinery are secret.

(11) F. W. C. writes: 1. Will you give a simple receipt for curing sheep skins for home use, with and without the wool? Also the way to prepare sheep skins and cattle hides for market? A. If the skins are green, lay the skin flesh side up, and spread equal parts of salt, saltpeter, and alum, pulverized finely; roll the skins closely and let them lie for a few days. Then wash thoroughly and scrape off any flesh that may remain on the skin. Then soak the skins for 24 hours in a weak solution of sal soda, borax, and soap. Then wash in soap suds and soak again in a weak solution of alum and salt, equal parts. Then wash in warm water and dry. Then work the skin to soften by rolling and rubbing. The rawskins of sheep and cattle need only salting and drying for market.

(12) D. N. G. writes: In your edition of June 16, 1883, under the heading of "An Elastic Lacquer," on the 5th and 6th lines you say, "55 pounds of melted India rubber are added." Please be kind enough to tell me if raw India rubber is meant, and how to melt it. Is it done with naphtha, as described in SUPPLEMENT, No. 158? A. Crude commercial rubber is the article referred to in the issue you mention. It is melted by heat; we would recommend that it be melted over a water or steam bath in order to prevent the burning. It can be dissolved in naphtha, and the evaporating of the latter will leave the rubber in suitable condition for use in the manufacture of a cement.

(13) S. M. R. writes: Can material be had or made for colored light other than the offensive kind commonly in use—something suitable for Christmas service or social use? A. You can use candle lights in colored gelatine lanterns or alcoholic solutions of various colored salts can be prepared, but we fail to comprehend how these are in any way better than the mixtures commonly sold.

(14) J. M. D. asks for a color for paper so that water or alcohol will have no effect on it. A. We know of nothing better than the coating of the paper with some waterproof composition. A transparent copal varnish would answer for this purpose, we believe. It would be best to first waterproof your paper and then coat it with color. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 96, page 1531.

(15) C. E. W. asks what to use in tanning skunk skins, to deodorize them? A. The process of tanning fur skins is given in answer to query 15 in the SCIENTIFIC AMERICAN, Sept. 1, 1883. To deodorize skunk skins hold them over a fire of red cedar boughs, and sprinkle with chloride of lime; or wrap them in green hemlock boughs, when they are to be had, and in twenty-four hours they will be deodorized.

(16) J. M. K.—You can straighten band saws in the following manner: Put the saw on to the machine and under tension, just as it is to be used. Use a steel straight edge 10 or 12 inches in length to find the lumps or twists, which mark with chalk so as to know where to hammer. Now hold the oval face of a millwright's or carpenter's hard wood mallet opposite the chalk marks and against the saw, and with a light, oval faced hand hammer knock out the lumps. Commence carefully, do not strike too hard. Examine your saw often with your straight edge to see how you get along, and you will soon be able to take out twists readily and get your saw perfectly true. J. E. E.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

L. C. L.—Sample No. 1 has the appearance of being a poor fire clay; its value in New York would not exceed \$1.50 per ton. Sample No. 2 has no commercial value. Both of these samples might be utilized in local industries, but they would not pay cost of mining and transportation to any distance.

NEW BOOKS AND PUBLICATIONS.

A PLEA FOR THE CURE OF RUPTURE. By Joseph H. Warren, A.M., M.D. James R. Osgood & Co., Boston.

This is only a brief monograph on an important part of the general subject of "hernia," being principally on the pathology of subcutaneous operation by injection, but it comes from a distinguished operator and authority on the subject, and will undoubtedly command wide attention in the profession. Although written especially for doctors, it cannot fail to interest every intelligent reader who may be afflicted with rupture.

GALVANOPLASTIC MANIPULATIONS. William H. Wahl, Ph.D. Illustrated, Henry Carey Baird & Company, Philadelphia. Price, \$7.50.

This book is "a practical guide for the gold and silver electroplater and the galvanoplastic operator." It is based upon Roseleur's *Manipulations Hydroelectriques*, but, in addition, it embraces all the more recent and important processes, methods, and formulae, especially as developed and practiced in the United States. The battery and the dynamo electric machine, in their various types and modifications, are noted in connection with the deposition of all the metals by their aid. The necessary apparatus in the most approved processes of deposition by simple immersion are clearly explained and illustrated. The work is divided into three parts, treating of thin metallic deposits, galvanoplastic operations, proper—thick metallic deposits—and the chemical products and apparatus used. Each branch and detail of the subject are concisely and clearly dwelt upon, no one of any importance being omitted. Either as a guide for the amateur or an aid to the skilled operator, the book will be found of great value.

CHEMISTRY: GENERAL, MEDICAL, AND PHARMACEUTICAL. By John Atfield, F.R.S. Henry C. Lea's Son & Co., Philadelphia, Pa.

This manual is a work on general chemistry, so far as the laws and principles of that science are concerned, but is directed mainly to the pupils, assistants, and principals engaged in medicine and pharmacy. The first few pages are devoted to some of the leading properties of the elements, after which comes a detailed consideration of the elementary and compound radicals, the analytical and synthetical bearings being pointed out. Then

are treated the chemistry of substances naturally associated in animals and vegetables, practical toxicology, and the chemical as well as microscopical features of urine. A laboratory guide to the chemical and physical study of quantitative analysis constitutes the concluding section. In the appendix is a table of tests for impurities in medical preparations, and one of the saturating power of acids and alkalies. The book differs from chemical text books in the exclusion of the discussion of compounds which at present only interest the scientific chemist, also in containing the chemistry of every substance recognized in general practice as a remedial agent, and in the paragraphs being so classed that the work may be used as a guide in studying the science experimentally.

CHEMISTRY: INORGANIC AND ORGANIC, WITH EXPERIMENTS. By Charles Loudon Bloxam. Henry C. Lea's Son & Co., Philadelphia, Pa. 292 illustrations. Leather, \$4.75.

After having defined atoms and molecules, and their weights, and enumerated and classified the elements and also divided the compounds into organic and inorganic, the author reaches the first division of the book, treating of the chemistry of the non-metallic elements and their compounds; the second section being taken up with the chemistry of metals, and the remainder of the book with organic chemistry. Throughout the work are introduced simple illustrative experiments, which the student can perform for his own instruction, thus obtaining a clearer insight into the mysteries of the science. English weights and measures and the Fahrenheit thermometric degrees have been used, the various calculations are in the simplest arithmetical form, and technical terms are used only when absolutely necessary. The present edition (fifth) has been carefully revised and brought into harmony with modern views. The author has most admirably succeeded in his design "to give a clear and simple description of the elements and their principal compounds, and of the principles involved in some of the most important branches of manufacture."

GUENN: A WAVE ON THE BRITISH COAST. A novel. By Blanche Willis Howard, author of "Aunt Sevens," "One Summer," etc. James R. Osgood & Co., Boston.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted December 18, 1883.

AND EACH BEARING THAT DATE.

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

Advertising apparatus, mechanical, S. E. Riblet, 290,474
Airbrake for cars and locomotives, P. Reilly, 290,269
Alarm. See Burglar alarm.
Album leaf, photograph, R. Moser, 290,648
Asbestos cloth, H. W. Johns, 290,239
Axle skein, J. W. Anderson, 290,511
Bag filling and weighing machine, combined, Johnson & Turner, 290,240
Bale tie, cotton, J. Ferguson, 290,221
Baletie fastening, W. A. Du Bois, 290,549
Barrel former, T. L. Lee, 290,334
Barrel, ventilated, T. L. Lee, 290,335
Battery plate, Taylor & King, 290,611
Bearing, adjustable anti-friction, G. A. & A. N. Parnall, 290,601
Bed, cot, C. F. C. Hahn, 290,418
Belt suspending device, J. M. Estabrook, 290,219
Bicycle, W. S. Hamby, 290,576
Blackboard, Potter & Fenner, Jr., 290,651
Blocks, machine for consolidating loose materials into solid, J. H. Wagner, 290,293
Boat hull, T. T. Hodson, 290,332
Boiler. See locomotive boiler.
Boiler furnace, steam, A. Ritter, Jr., 290,270
Boiler tube expander, conical, J. Scully, 290,273
Book, check or account, J. A. Jackson, 290,432
Book holder, E. J. Wood, 290,381
Boot and shoe cleaning and polishing apparatus, R. Austrian, 290,386
Boot or shoe, T. P. Mitchell, 290,460
Boots, machine for blocking the quarters of, S. Hudson, 290,234
Boring machine, R. M. McDaniel, 290,339
Bottle stopper, C. O. Hammer, 290,577
Box. See Fagot box. File box. Hat show box. Letter box.
Box cover attachment, B. M. Sahlein, 290,481
Bracelet, P. Lettre, 290,590
Braiding machine, cord, Barnes & Winn, 290,624
Brake. See Air brake. Elevator brake. Vehicle brake.
Brick, apparatus for drying green, H. Dickson, 290,323
Brick kiln, T. B. Anderson, 290,512
Brick kiln, L. Niehaus, 290,261
Broom support, Bowen & Suetterle, 290,315
Brush, G. Brintzinger, 290,522
Buffing pad, J. L. Cross, 290,621
Burglar alarm, G. M. Pratt, 290,605
Burner. See Gas or oil burner.
Bustle, T. C. Cassidy, 290,533
Bustle and corset, combined, M. A. Waterhouse, 290,505
Button, J. Costello, 290,321
Button and button fastener, C. Erlanger, 290,409
Button and fastener, G. W. Prentice, 290,353
Button, cuff, E. F. Pfeuger, 290,604
Button, separable, A. G. Weber, 290,614
Calendar, H. Taylor, 290,280
Can. See Oil can.
Cane mill, W. S. Reeder, 290,472
Cap, W. E. Wood, 290,621
Capsule machine, F. A. Hubel, 290,583
Car brake, A. A. Lambrigger, 290,588
Car brake, L. Wilkerson, 290,379
Car brake hanger, J. Rhoads, 290,356
Car coupling, C. E. Carr, 290,317
Car coupling, George & Turpin, 290,569
Car coupling, M. Hunter, 290,330
Car coupling, J. R. Kirksey, 290,243
Car coupling, M. H. Merrill, 290,452
Car coupling, H. L. Shireman, 290,276
Car coupling, M. E. Swart, 290,656
Car draw gear, railway, Johnson & Thomas, 290,241
Car, dumping, G. J. Wheelock, 290,298
Car platform, railway, S. M. Beery, 290,516
Car seat attachment, P. W. Morris, 290,344
Car signal, G. H. Cormack, 290,540
Car spring, C. C. Hebbard, 290,582

Car wheel, H. M. Boies, 290,518
Car wheel, A. Keil, 290,434
Car wheel and axle, A. Keil, 290,435
Card gilding machine, C. A. Wright, 290,303
Cards or tickets for creating value, machine for manipulating, Campbell & Martin, 290,335
Carding machines, lap feeding device for, R. Wilde, 290,378
Carpet stretcher, S. Amick, 290,308
Carpet stretcher, H. Segur, 290,274
Carriage spring, W. Van Anden, 290,502
Carriage top lock, landau, O. S. Osborn, 290,349
Carriage tops, cap or shield for buckle straps of, G. W. Traphagan, 290,289
Carrier. See Hay carrier.
Carriage crimper, H. A. A. Thorn, 290,370
Carriage implement, D. W. McBrayer, 290,594
Case. See File case. Gun case.
Cellars for cooling and ventilation, construction of, E. Schröder, 290,483
Chain, neck or bracelet, D. S. Spaulding, 290,273
Chain, ornamental, J. T. Joyce, 290,643
Chandelier, extension, H. O. Winslow, 290,618
Chimney cowl and ventilator, J. F. Pond, 290,266
Churn motor, A. Green, 290,639
Cigar coloring machine, M. A. Winget, 290,617
Cigarette machine, Burns & Buckman (r), 10,428
Clip. See Tug clip.
Clothes drier, C. G. Udell, 290,501
Clutch, friction, J. H. Blessing, 290,517
Coloring matter, production of yellow, E. Jacobson, 290,585
Connecting rod and piston, J. B. Lang, 290,382
Coop, chicken, E. L. Nash, 290,346
Corn in the stalk and separating the kernels, reducing, S. P. Goodard, 290,571
Cotton gin rib, W. S. Reeder, 290,471
Coupling. See Car coupling. Hose coupling. Tank coupling. Yoke coupling.
Crane, T. R. Morgan, Sr., 290,260
Crank coupling, J. R. Fry, Jr., 290,565
Cultivator, J. W. Cook, 290,539
Cultivator, Lilly & Norman, 290,440
Cultivator, S. P. Snyder et al., 290,366
Cultivator, M. M. Warmoth, 290,376
Cup. See Oil cup.
Cutter. See Vegetable cutter.
Degranulating machine, K. Seifert, 290,485
Dental engine fan, Ross & Klink, 290,359
Dental engines, abrasive disk holding spindle for, W. P. Cooke, 290,401
Digger. See Potato digger.
Dish washer, W. M. Burckett, 290,528
Display body, J. M. Simpson, 290,489
Display rack, C. H. Michael, 290,453
Door check, J. W. Bulger, 290,526
Door fastener, portable, E. Pfund, 290,352
Door or shutter, sliding, E. H. Walton, 290,373
Door securer, W. Coe, 290,400
Doors, stay roller for sliding, W. M. Brinkerhoff, 290,521
Dough or butter worker, W. H. Bryan, 290,392
Drawer, O. A. Jensen, 290,287
Drawing knife, J. S. Cantelo, 290,396
Drawing, spacing instrument for, G. P. Conant, 290,210
Drier. See Clothes drier.
Drill. See Rock drill.
Drilling and boring machines, automatic friction feeding device for, J. J. Kirby, 290,242
Edger, J. A. Robb, 290,358
Electric battery, G. G. L. Velloni, 290,654
Electric cable, R. S. Waring, 290,375
Electric circuit maker and breaker, automatic, C. G. Perkins, 290,470
Electric lighting, H. Van Hovenbergh, 290,282
Electric machine, dynamo, J. Du Shane, 290,550
Electric machine, dynamo, J. W. Easton, 290,551
Electric machine regulator, dynamo, J. E. Giles, 290,412
Electric wire conduit, C. H. Goebel, 290,413
Electric wire conduit, underground, C. H. Goebel, 290,414, 290,415, 290,416
Electroliters, circuit connection, H. Edmunds, Jr., 290,407
Elevator. See Hoist elevator. Ice elevator.
Elevator brake, R. W. Weymouth, 290,297
Elevator gate, automatic, W. L. Goffney, 290,326
Elevator safety attachment, Berchford & Leffer, 290,302
Elevator safety attachment, E. C. L. Kunnecke, 290,331
End gate wagon, J. P. Ware, 290,374
Engine. See Gas engine. Rotary engine. Steam and air engine.
Envelope or other box, F. W. Field, 290,223
Excavating apparatus, J. M. & L. M. Shute, 290,488
Excavator, earth, C. A. Smith, 290,362
Exhaust, utilizing, D. Renshaw, 290,473
Extractor. See Shell extractor.
Fagot box, F. E. Perkins, 290,264
Feed water heater, G. W. Sloane (r), 10,427
Feeder, boiler, G. Westinghouse, Jr., 290,507
Felt covering, hair, H. W. Miller, Jr., 290,456
Felted slugs, manufacturing, Haviland & Gunn, 290,280
Fence, T. K. Hansberry, 290,578
Fence, farm and flood, A. L. Cottrell, 290,406
Fence wire, machine for attaching wire bars to, T. McCosh, 290,595
Fence wire, making barbed, C. D. Rogers, 290,272
Fender. See Furniture fender.
Ferrule shaping machine, H. O. Lothrop, 290,250
Fertilizer for tobacco crops, A. Edwards, 290,623
File box, W. H. Tucker, 290,498
File box, M. J. Wine, 290,615, 290,616
File case, J. S. Gheen, 290,570
File holders, support for bill, W. H. Tucker, 290,497
Filter, eccentric shaped, L. Smith, 290,364
Fire arm, magazine, A. Burgess, 290,393, 290,394, 290,529
Fire arm, magazine, J. W. Frazier, 290,636
Fire escape, W. I. Allinder, 290,197
Fire escape, A. A. Beckett, 290,311
Fire escape, G. M. Bird, 290,313
Fire escape, D. R. Clymer, 290,630
Fire escape, Geiger & Moore, 290,567
Fire escape, W. L. McCanliss, 290,254
Fireproof cloth, H. W. Johns, 290,238
Float valve or ball cock, J. E. Boyle, 290,204
Flood gate, E. P. Poindeexter, 290,265
Flour mill feeder, P. Harnist, 290,621
Flowers, machine for making the bodies of artificial, L. Lafon, 290,436
Flushing valve, J. McGinley, 290,256
Folding table, C. G. Udell, 290,500
Furnace. See Boiler furnace.
Furnace chimney, D. M. Graham, 290,573
Furniture fender, Peck & Gaylor, 290,466
Gage. See Weather boarding gage.
Game apparatus, A. Hicks, 290,328
Game table, F. Schlueter, 290,360
Garment protector, H. M. Chittenden, 290,319
Gas engine, C. W. Baldwin, 290,310
Gas engine, H. Denney, 290,632
Gas engines, apparatus for utilizing the waste heat of, J. V. Merrick, 290,451
Gas, facilitating the passage of oil through pipes and making illuminating, L. C. Snell, 290,491
Gas generator, L. C. Beebe, 290,627