Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

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 This is for our information, and not for publication.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

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.

(858) S. G.—1892 and 1896 will be leap years; 1900 will not be a leap year. After that the succession will be regular for many years.

(859) G. A. C. asks (1) for a good receipt for a blacking for ladies' shoes. A. Mix a filtered solution of 80 parts shellac, in sufficient alcohol, with 3 of wax, 2 of castor oil, and a sufficient quantity of pigment, such as best lamp black or drop black. It must be kept corked. 2. A practical receipt for making cake stove polish. A. Compress the best graphite or plumbago into cakes by hydraulic pressure. 3. A first class receipt for a polish for furniture, pianos, etc.? A. Melt two or three cubic inches of gum sandarac, add 1 pint of boiled oil, and boil together for 1 hour; while cooling add 1 drachm Venice turpentine and dilute according to judgment with oil of turpentine. 4. A good receipt for liquid glue, that will mend china, wood, metal, etc. A. Dissolve best glue in hot acetic acid, or having dissolved it in water add nitric acid; for the last use 1 quart of water, 2 pounds glue, and 7 ounces acid, adding the latter slowly. 5. A first class washing powder that will foam and form suds when put into water. A. Dry soap, and pulverize it. 6. A good receipt for making a shaving soap that will give a good lather. A. Consult our SUPPLEMENT, Nos. 258, 308, 328, 330, and 360 for articles on soap. 7. A receipt for a good, durable black writing ink and a black indelible ink for marking linen, etc. A. For inks of all kinds we refer you to our SUPPLEMENT, No. 157. 8. Also a receipt for a very dark bluing water for washing clothes. A. Dissolve Prussian blue in water containing ferrocyanide of potassium in solution.

(860) J. B. W. asks for a receipt for making a black paint or enamel that will stand heat, for enameling a small engine boiler and fire box. A. Use shellac and alcohol mixed with best black. This will stand a considerable degree of heat without being destroyed, and after it has lost its good appearance it is easily renewed. Or you could apply a black oil japan ground, such as the following: Asphaltum 3 parts, boiled oil 128 parts, burnt umber 8 ounces. This will require heat from 250° to 300° to make it dry. It may be heated in an ordinary oven.

(861) F. P. A. asks (1) which are the best batteries to use, and how many do I need for a 3 candle power incandescent lamp (Edison)? A. Six bichromate cells will operate your lamp very well for temporary use. 2. I have an electric door bell; had it with one Novelty Disque battery; but thinking it a little weak, I connected it with another of the same kind, and soon after the jar cracked, and rendered it useless. Can you explain why it cracked? A. The cracking of the jar is only a coincidence. The jar may have cracked from one of a dozen reasons.

(862) F. C. H. writes: 1. Suppose a house in Newton Center and a house in Newton Corner were supplied with gas and water, could the water pipe be used as one telephone line and the gas pipe the other, or would they be short-circuited in the earth? A. As both of the pipes are thoroughly grounded, we think it would be impossible to secure a telephonic circuit by the means suggested. 2. Can a magneto be made to ring a common electric bell? A. An electric bell of high resistance may be operated fairly well by means of a magneto.

(863) F. M. asks what kind of a mixture he can use to coat card or tar board with so that he can write on it with a slate pencil and rub it out same as on the silicate slates. A. Mix 1 gallon 95 per cent alcohol with 1 pound shellac, 8 ounces best ivory black, 5 ounces finest flour emery, and 4 ounces ultramarine blue. Dissolve the shellac first, then add the other constituents. This is a typical formula, and may be varied considerably. The general idea is to use emery or ground pumice stone as the abrading or roughening material, with black coloring matter and alcoholic varnish.

(864) O. K. asks how he can preserve gunpowder in shells from melting into fluid in South America, say in Ecuador during the rainy season. A. As the melting alluded to is due to moisture, your best plan is to use the best quality of powder and coat the shells thickly with melted paraffine. Possibly some of the wood or brown powders would be guaranteed not to melt or deliquesce.

(865) H. J. writes for a receipt for making a good soap, as simple as possible, one that does not injure the skin. I have always plenty of good grease at command, and in hot weather it is offensive if kept too long, and difficult to get rid of. A. Melt down the grease and skim it free from refuse, scrap, etc. Dissolve 1 pound caustic soda in water for every 6 pounds of grease. When the soda solution has cooled add it to the grease, stir thoroughly, and pour into a pan. This soap is a little too alkaline for toilet purposes. After it has stood for a few days shave or cut it up and place in a dish with about ¼ to ½ its volume of water and heat to boiling. The soap will separate in clots. If it does not, add salt until a good separation takes place. Chill it by pouring on a little cold water, pour off the water, and remove the soap. Remelt with a little clear water and cast in moulds, such as tea cups or patty pans. Perfume if desirable, though it is better without.

(866) E. B. S. writes: 1. Can you inform me whether there is such a thing manufactured as shot in small sizes, such as bird shot, in iron or steel, instead of lead? A. Such material is made for and is used by the granite polishers. Any of such could give you further information. 2. Could they be made by the dropping process, the same as shot made from lead? A. It can be so made, but of course would tend to destroy the apparatus used. It is probably best made by a strong air or steam blast which is directed against a stream of molten iron so as to drive it into spray.

(867) W. H. H. asks for a recipe for bleaching ivory. I have a sunshade whose handle has turned yellow, and would like to know how I can whiten it. A. Clean it by rubbing with finely ground pumice stone and water, and wash, and while still moist expose to the sun in a glass vessel. Use a clean pickle or preserve jar. Do not expose directly to the sun, or it will crack.

(868) A. G. asks whether aluminum can be soldered. If so, how to do it? A. The following alloys are given:

a.	Aluminum	8 parts.	Zinc	92 parts.
b.	"	12 "	"	88 "
c.	"	15 "	"	85 "
d.	"	20 "	"	80 "

The aluminum is first melted, the zinc added gradually, finally some fat is added, and the whole is stirred with an iron rod and poured into moulds. For flux use copaiba balsam 3 parts, Venice turpentine 1 part and a few drops of lemon juice. Dip the soldering iron into the same flux.

(869) C. I. F. asks: Would the motor illustrated in SCIENTIFIC AMERICAN of March 17, 1888, be strong enough to run an ordinary size skiff, say 12 feet long, screw propeller, in a stream with very little or no current? A. The motor will run such a boat as you describe.

(870) P. J. W. asks whether or not the banana grows upon a tree. A. The banana plant is fairly denominated a tree, as it exceeds the limit of height generally used to determine shrubs.

(871) J. H. S. writes: 1. What is the process for liming eggs, and how long will they keep in an ordinary, cool cellar? A. To each pail of water add 2 pints freshly slaked lime and 1 pint of salt and mix well. Half fill a barrel with it and place the eggs therein. They will keep, it is said, for two years. For preservation of eggs see our SUPPLEMENT, Nos. 95, 101, 217, and 463.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

May 14, 1889,

AND EACH BEARING THAT DATE.

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

Aerated water, apparatus for manufacturing, J. T. Leighton 403,117
Air and gas engine, Schmid & Beckfeld 403,294
Animals, device for administering medicine to, P. Quitman 403,213
Attrition mill, G. & A. Raymond 403,215
Auger heads, die for forming, H. L. Shaler 403,296
Axle boxes for railway carriages, manufacturing, J. Donnelly *et al.* 403,422
Axle boxes, metal packing for car, H. Rogers 403,141
Axle lubricator, car, T. Saunders 403,448
Baling press, V. L. Williams 403,498
Bar. See Boring bar. Draw bar. Grate bar. Pinch bar. Railway splice bar.
Basket cover, fruit, F. A. Thomas 403,156
Batteries, time switch for secondary, C. E. Buell 403,177
Battery. See Electric battery. Galvanic battery.
Bed bottom, woven wire, J. B. Ryan 403,143
Bed drier and warmer, J. Fossati 403,389
Bed lounge, C. Newhouse 403,284
Beer chest or refrigerator, O. Neuman 402,130
Bell, call, E. H. Peck 403,286
Bellows fold coupling, H. H. Sessions 403,224
Belt hole cover, W. E. Sharples 403,390
Belt supporter, L. Sanders 403,220
Belt tightener, E. Benjamin 403,454
Bicycle, W. E. Smith 403,153
Block. See Pillow block.
Board. See Clip board. Key board.
Boat. See Collapsible boat. Folding boat.
Boats, means for the electrical propulsion of, R. M. Hunter 403,193
Boiler. See Egg boiler.
Boiler, Gamper & Farkacz 403,343
Bolt locking device, C. I. Penrose 403,131, 403,132
Bolting cloth cleaner, G. S. Burnap 403,088
Book case, revolving, C. Goddard 403,099
Boring and drilling machine, B. B. Barnett 403,240
Boring bar, adjustable multiple cutter, J. Stone 403,154
Bottle stopper, S. Glover 403,466
Box. See Collapsible box.
Box end, J. F. Simpson 403,226
Box fastener, J. A. Strong 403,398
Box strap, S. C. Cary 403,178, 403,246, 403,247
Box strap, metal, S. C. Cary 403,245
Boxes, manufacture of wooden, E. Densmore 403,333
Brake. See Car brake. Elevator safety brake. Locomotive brake. Railway train brake. Truck brake.
Brewing, apparatus for, C. Clinch 403,252
Brick machine, W. Weeber 403,235
Bridge, suspension, H. M. Kosler 403,433
Broiler, M. C. Armour 403,407
Brush, rotary, T. E. Clark 403,328
Buckle, L. M. Doddridge 403,254
Buckle, J. H. Harrell 403,469
Buckle, belt, A. Goertz 403,263
Burner. See Hydrocarbon burner. Oil and gas burner.
Button, R. H. Lewis 403,477
Cable grip carrier, J. Stephenson 403,303
Cable, wire, Batchelor & Latch 403,319
Cam, adjustable, A. D. Woodmansee 403,169
Can. See Milk can.
Car brake, G. Collins 403,090
Car brake, F. D. Paradise 403,285
Car brakes, registering gauge for railway, R. Potts 403,210
Car, cable grip, J. Stephenson 403,395
Car coupler, mining, W. Walter 403,159
Car coupling, M. D. Cox 403,461
Car coupling, A. J. McGehee 403,282
Car coupling, P. E. Muller 403,205
Car coupling apparatus, D. H. Freeman 403,341
Car coupling link, Schinnelier & Jones 403,147
Car door, grain, G. W. Oborn 403,366
Car, railway, L. J. Harris 403,265
Car, railway, J. J. Treanor 403,309
Car starter, Wistar & Pettet 403,167
Car step, extensible, J. F. & J. F. Wood 403,237
Car, street, A. Rapp 403,214
Car track brake housing, J. Stephenson 403,300
Car track guard, J. Stephenson 403,302
Car tracks, brake shoe for, J. Stephenson 403,229
Cars, apparatus for operating safety gates of railway, W. M. Brown, Jr. 403,176
Cars, draw gear for cable, J. Stephenson 403,301
Cars, grain door for freight, Patterson & Lawrence 403,208
Cars, track brake for, J. Stephenson 403,299
Cars, vestibule connection for railway, G. M. Pullman 403,137
Carding machines, sliver colling can for, E. & G. E. Sutcliffe 403,304
Carpet cleaner, W. P. White 403,313
Carpet stretcher, A. W. Muhlhauser 403,126
Carriage, baby, F. J. D. Chappell 403,417
Carriage bow, J. C. Coss 403,091
Carriage curtain fastener, S. T. Scott 403,388
Carrier. See Cable grip carrier. Life-line carrier.
Cart, road, R. D. Scott 403,148
Case. See Book case. File case.
Cask, collapsible shipping, J. H. Mitchell 403,501
Casks, air ejector for, J. W. Funck 403,261
Casting sash weights, chill core for, Humphrey & Good 403,191
Chain, drive, T. H. McCray 403,127, 403,128
Chair. See Reclining chair.
Chair attachment, rocking, W. I. Bunker 403,325
Check hook, harness, M. Ingersoll 403,351
Chest. See Beer chest.
Chlorine, apparatus for making, A. R. Pechiney 403,445
Chopper. See Cotton chopper.
Chuck, drill, M. L. Andrew 403,083
Churn, J. W. Ferrenburg 403,337
Churn, Robertson & Gammon 403,140
Cigar bunching machine, Borgfeldt & Lewyn 403,410
Cigarette mouthpieces, machine for making, S. Brown 403,324
Cleaner. See Bolting cloth cleaner. Carpet cleaner. Window cleaner.
Clip board, folding, W. G. Weagly 403,233
Clock, electric alarm, T. H. Grady 403,100
Clock striking mechanism, A. M. Lane 403,275
Clocks, setting mechanism for alarm, A. M. Lane 403,274
Closet. See Water closet.
Clothes line attachment, M. Denise 403,332
Clutch, friction, G. L. Gerhard 403,098
Coal and wood cabinet, H. Brandt 403,456
Coffee roaster, J. T. Couse 403,419
Coin operated lock, F. M. Leavitt 403,200
Collapsible boat, C. Henderson 403,470
Collapsible box, L. Casper 403,089
Colter band, A. J. Tatum 403,399
Conduits, coupling for underground, W. Lake 403,352
Conveyer, R. E. Hurley 403,269
Cooking vessel, Dawes & Myler 403,093
Cooking vessel, H. A. Manning 403,279
Corset fastening, N. B. Williams 403,166
Corset stiffener, I. D. Warner 403,161
Cotton chopper, A. O. Woodbury 403,403
Cotton sprinkler, W. Kister 403,475
Coupling. See Bellows fold coupling. Car coupling. Vehicle coupling.
Cuff retainer, J. M. March 403,280
Cultivator, corn, W. J. Gohn 403,426
Cultivator, hand garden, J. W. Bowman 403,413
Cultivator, wheel, R. C. Buckley 403,414
Cup. See Grease cup.
Currency package, E. E. Barreiras 403,085
Current wheel, J. Straszer 403,493
Curtain fixture, A. W. Gayhart 403,344
Cutter. See Veterinary incisor cutter.
Damper, W. A. Hance 403,467
Damper, C. F. Lange 403,353
Damper, stovepipe, W. A. Hance 403,468
Damper, stovepipe, S. C. Schofield 403,489
Dial, timepiece, A. Fischer 403,338
Digger. See Potato digger.
Direct acting engine, double-cylinder, W. D. Hooker 403,108
Dish, wooden, W. D. Johnson 403,111
Door check, H. Stanynought 403,393
Door closer, thermostatic, W. R. Patterson 403,484
Door hanger, W. W. Smith 403,228
Draught equalizer, W. E. Plumer 403,135
Draw bar and hook, B. N. Phelps 403,133
Dress stiffeners, manufacture of, I. D. Warner 403,160
Drier. See Bed drier. Grain drier.
Drill. See Rock drill.
Drum, heating, J. Hodgkinson 403,349
Dust collector, O. M. Morse 403,362, 403,363
Egg boiler, R. Rethoffer 403,446
Electric battery, J. A. Barrett 403,451
Electric cables, covering for, E. F. Garland 403,262
Electricenergy, apparatus for registering the consumption of, L. Brillie 403,244
Electric machine, dynamo, F. A. Perret 403,487
Electric machine, dynamo, H. E. Walter 403,158
Electrical distribution, system of, E. P. Thompson 403,308
Electroplating lead pipes, L. D. Hosford 403,429
Electrotype moulds, apparatus for metallizing, S. P. Knight 403,197
Elevator. See Hay elevator.
Elevator carriages, electric controlling device for, W. E. Nickerson 403,439
Elevator, electrically controlled, W. E. Nickerson 403,441
Elevator, safety brake, W. E. Nickerson 403,438
Elevators, electric controlling device for, W. E. Nickerson 403,440
Elevators, electric controlling mechanism for, W. E. Nickerson 403,442
Elevators, fluid speed elevator for, W. E. Nickerson 403,436
Elevators, fluid speed regulator for, W. E. Nickerson 403,437
Embroidering machine, Saurer & Leuthold 403,221
End gate, wagon, A. E. Beason 403,241
End gate, wagon, J. A. McClellan 403,480
Engine. See Air and gas engine. Direct-acting engine. Expansion engine. Gas engine. Gas or gasoline engine. Rotary steam engine.
Engine, J. F. Shawhan 403,150
Expansion engine, quadruple, J. Haug 403,266
Fence gate, barbed wire, T. M. Sampson 403,219
File case or cabinet, W. T. Wood 403,168
Firearm sight, J. S. Blankman 403,242
Folding boat, Allen & Gamble 403,171
Frame. See Harvester elevator frame.
Fruit gatherer, W. J. Wingenroth 403,500
Fruit picker, W. P. Craig 403,331
Furnace. See Hot air furnace.
Furnace cover, W. Sleicher, Jr. 403,152
Gaff topsail for vessels, L. W. Falck 403,257
Galvanic battey, C. Colle 403,253
Galvanometer, portable tangent, E. Weston 403,312
Gas, apparatus for the manufacture of, J. M. Rose 403,384
Gas, apparatus for the production of, R. Naysmith 403,283
Gas engine, Rogers & Wharry 403,379
Gas engine governor, Rogers & Wharry 403,378
Gas engines, carburetor, Rogers & Wharry 403,377
Gas engines, dynamo igniter for, Rogers & Wharry 403,376
Gas engines, igniter for, Rogers & Wharry 403,380
Gas, manufacturing, J. M. Rose .... 403,381 to 403,383
Gas meter, W. Y. Stansbrough 403,297
Gas or gasoline engine, L. C. & B. Parker 403,367
Gaseous fuel, apparatus for making and burning, Locke & Richardson, Jr. 403,434
Gate. See End gate. Fence gate.
Gate, C. Tibbs 403,401
Gear wheel, M. T. Graf 403,101
Gold and silver from ores, obtaining, J. S. MacArthur *et al.* 403,202
Grain binder, C. H. Salzman 403,385
Grain drier, L. Borland 403,411, 403,412
Grain meter, A. Stewart 403,396
Grain scourer, H. Seck 403,389
Grate bar, rocking or shaking, C. J. Dorrance 403,255
Grate, inclined, H. H. Campbell 403,416
Grease cup, J. Massett 403,358
Grinding mill, E. Derbec 403,421
Grinding twist or flat drills, gauge for, A. F. Brewer 403,175
Guard. See Car track guard.
Gun, spring, J. D. Egler 403,096
Gun, spring, E. Y. Knapp 403,432
Hammer, power, R. A. Belden 403,453
Hammock, A. Beals 403,320
Hammock, H. M. York 403,315
Handcuffs and nippers, combined, W. A. Hicks 403,268
Hanger. See Door hanger.