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HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, 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 This is for our information and not for publication.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.

(5796) A. M. S. asks: 1. I have a small electric battery motor rated at one-sixth horsepower at 10 volts. Now I wish to run it from a lamp current from an Edison standard dynamo rated at 8-1-5 kilowatts, 125 volts, with 60 amperes as working load. How shall I proceed? Shall I have to put any lamps in the circuit? If so, how many? A. According to your figures, your motor can absorb a maximum of $\frac{7}{12}$ amperes at 10 volts. If used on a 125 volt circuit, you must put lamps or other resistance of 11 ohms and 10 amperes capacity in circuit with it. The system would involve great waste of energy. Sixteen 28 candle 31 volt lamps, four in parallel and four in series, or ten $\frac{9}{4}$ candle power lamps in parallel, would give the result approximately. This is on the assumption that the motor is shunt wound. 2. What would be the results to motor should I put on full potential of 110 volts? The motor is wound as follows: Armature 3 coils $\frac{1}{2}$ pounds No. 21 wire, field magnet single coil of 4 pounds No. 16 wire. A. It would burn out both field and armature.

(5797) D. D. W. writes: 1. Is the one horse power eight light dynamo, SUPPLEMENT, No. 600, a high tension machine? If not, what is a high tension and also low tension current? A. There is no such thing as a high tension or low tension current. A circuit can be thus described, reference being made to the maximum difference of potential existing between any two points of it. 2. With one-half horse power will it give about one-half as much current; one-fifth horse power, one-fifth as much current, as with one horse power? A. On short circuit this would be the general effect; on a circuit of high resistance the voltage would vary mostly; on an intermediate circuit both voltage and amperage would vary. 3. Will motor Nos. 641 and 161, with drum armature, run all right with current from this machine? A. The voltage is too high for the motors mentioned.

(5798) J. O. F. asks: If a small amount of caustic soda water accidentally introduced into steam boilers with feedwater would cause priming? We boil our double effect with very strong caustic soda water and have a considerable (inaccessible) leak, which, when steam is shut off and vacuum broken, allows the soda to enter the steam chamber, and when steam is again turned on is blown into feedwater heater. There can certainly be a very small amount, but am unable to account for the behavior of boiler water otherwise. A. Pure caustic soda in small quantity will keep a boiler clean from incrustation by frequently blowing off the boiler, and will not cause

serious foam. We assume, although you do not state it, that a little sugar goes into the boiler with the soda, which we have no doubt is the cause of the foaming. As a remedy, the water that leaks into the steam chamber should be blown out and wasted by an outlet in the pipe leading to the heater.

(5799) E. P. W. asks (1) how to make carbonic acid gas. A. Pour hydrochloric acid on marble dust. 2. What pressure it takes to liquefy? A. 36 atmospheres at 33° Fah. 3. How to condense it after expansion? A. By pressure applied by a pump.

(5800) R. S. C. asks: 1. How are the spots made on the barometer which you will find enclosed? A. They are marked with a cobalt compound; possibly the chloride. 2. How is fuse wire made for 110 volts? A. Fuse wire is calculated for amperage, not for voltage. 3. How should the hand power dynamo described in SUPPLEMENT, No. 161, be wound to give about 12 volts, to run an electric dental mallet? A. Use a drum armature with 500 turns of wire. See our SUPPLEMENT, No. 599. It is better to make the whole core of iron washers. 4. Where can I get the directions for making a steam siphon? Also what size suction and discharge pipe should I use for a quarter inch steam pipe? A. The size of discharge nozzle should be from two to three times the diameter of the steam nozzle. The smaller size for greater elevations, suction five times diameter of steam nozzle. The steam nozzle should be taper like a short hose nozzle and stop at three times its diameter from the discharge pipe mouth, which would be bell shape, to allow an easy entrance of the water. We have no detailed illustration of the siphon ejector. 5. Can the telephone used by the Bell Telephone Company be made by anybody after the last of January? A. The receiver can, not the transmitter.

TO INVENTORS.

An experience of forty-four 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 time and our extensive facilities for conducting the business. Address MUNN & CO., offices SCIENTIFIC AMERICAN, 361 Broadway, New York.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

February 6, 1894,

AND EACH BEARING THAT DATE.

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

Acid and caustic alkali, making nitric, Lunge & Lyte.....	514,124
Advertising machine, E. E. Hanna.....	514,363
Advertising, apparatus for successively displaying tablets for F. J. Beaumont.....	514,345
Advertising cards, means for displaying, R. Hay.....	514,072
Aerial vessel, J. B. Blanchard.....	514,408
Aerial vessel, S. Spaeth.....	514,287
Alarm. See Electric alarm. Fire alarm. Overflow alarm.	
Alkali and lead chloride, making caustic, Lyte & Lunge.....	514,124
Aluminous minerals, purifying, H. F. D. Schwabahn.....	514,039
Aluminum fluoride, making, W. Ackermann.....	513,971
Animal shear, J. K. Priest.....	514,273
Animal trap, C. Franke.....	514,668
Arch support, water purifier, and heater, G. W. Collier.....	514,349
Asphaltic composition powder for roadways, producing, C. H. Slein.....	514,045
Automobile, W. H. Hedgeshaw.....	514,190
Automatic sprinkler, R. W. Newton.....	514,161 to 514,163
Axle box lubricator, J. S. Fatin.....	514,372
Balloon folder, L. W. Littlefield.....	514,013
Banjo, C. E. Hobson.....	514,311
Barium, purifying native sulphate of, H. F. D. Schwabahn.....	514,040
Bat, baseball, C. Jacobus.....	514,420
Bathing apparatus coupling, J. J. Henzle.....	514,321
Battery. See Electric battery. Secondary battery.	
Beam anchor plate, A. E. Krause.....	514,151
Bed bottom, spring, M. C. Silver.....	514,384
Bed, folding, C. B. Adriance.....	514,402
Bedstead, folding, P. G. Le Dan.....	514,326
Bicycle, Moehr & Graves.....	514,193
Bicycle, H. M. Pope.....	514,882
Bicycle supporting attachment, A. E. Sherwood.....	514,044
Binder for papers, etc., temporary, E. L. Brundage.....	513,979
Bit. See Drill bit.	
Bit, A. A. Bourgoens.....	514,178
Blower, centrifugal, G. W. Poole.....	514,381
Board. See Cutting board.	
Boiler. See Steam and hot water boiler.	
Boiler flue scraper, automatic, Kingsland & Hill.....	514,195
Boiler tube, rake or scraper for cleaning, S. & L. Abraham.....	514,111
Bookcase and display cabinet, revolving, R. H. Ober.....	514,270
Bottle opener, caged, W. Painter.....	514,210
Bottle washer, H. Portewin.....	514,224
Bowl or washbasin set, S. P. Crosswell.....	514,214
Bowling alley, A. C. Crouse.....	513,988
Box. See Feed box. Knockdown box. Packing box. Paper box.	
Box cover, removable, D. Cree.....	514,144
Box fastener, J. Davy.....	514,416
Bxes, opener and handle for shoe polish or other, J. F. Smith.....	514,235
Brake. See Car brake. Car and air brake.	
Brick drier, A. F. Barron.....	514,406
Brick kiln, continuous, T. Green.....	513,929
Bricks, method of and apparatus for forming, H. H. Keller.....	514,421
Bridge gate, F. Carlson.....	514,064
Broom and lantern holder, combination, J. C. Huxford.....	514,122
Burner. See Gas burner.	
Buttonholestitch and making same, F. A. Cook.....	514,415
Cabinet, P. Marvel.....	514,126
Cable grip, J. A. Tauberschmidt.....	514,389
Can. See Seamless self-opening can. Shipping can.	
Can opener, L. W. Low.....	514,014
Canopy, W. Cole, Jr.....	513,984
Car and air brake coupling, S. J. Galloway.....	514,205
Car coupling, L. L. Flinstrop.....	514,286
Car coupling, P. C. Brown (r.).....	514,203
Car coupling, H. C. Trask.....	514,206
Car coupling, W. F. White.....	514,224
Car fender safety, G. Latte.....	514,196
Car, railway, M. Le Grand.....	514,232
Car, railway, C. H. Newbury.....	514,232
Car safety, non-telescoping railway, L. M. Warren.....	514,121
Car ventilator, filtering, C. E. Robbins.....	514,277
Carriage curtain fastener, C. A. Behlen.....	514,346
Carriage top, C. G. Ridout et al.....	514,333
Cartridge, R. J. Gatling.....	513,987
Case. See Bookcase. Show case. Traveling case.	
Cash register and indicator, O. Tverdal.....	514,202
Cash registers, combined draw ejector and lock for, Brown & Welty.....	514,082
Cash registering and indicating machine, J. J. Webster.....	514,174
Cash registering machine, A. Webster.....	514,175
Cash registering machine, J. J. & A. Webster.....	514,176
Caster, J. R. Sutliff.....	514,247
Caster, drive, R. J. Ha ill.....	514,001
Chair. See Reclining chair. Shoulder and back bracing chair.	
Check carrier, sales, W. M. Kinnard.....	514,010
Cheek identifying, N. H. Bledsoe.....	514,426
Chemical flask, A. E. Unterberger, Jr.....	514,252
Chimney attachment or cow, G. Blankley.....	514,008
Chuck, D. P. Johnston.....	514,165
Chuck, drill, O. K. Schmidt.....	514,358
Churn, J. A. Grant.....	514,055
Churn dasher, J. W. Ricker.....	514,164
Cigar box lifter, J. Deutach.....	514,181
Cigar holder, P. Sattelau.....	514,280
Cigarette machine, A. Moonells.....	514,228
Cigarette wrapper cutting machine, A. Moonells.....	514,240
Circuit controller, E. J. McEvoy.....	514,019
Clamp. See Dental clamp. Door or window clamp.	
Clover leaf feeder, Kaylor & Reeves.....	514,193
Chair, duplex, screening screen for cleaning and grading, L. Aulmann.....	513,973
Comb and comb cleaner, A. Brunner.....	513,980
Commutator brush, F. Kester.....	514,150
Condenser, surface, O. M. Row.....	514,338
Cooking, broiling, baking, etc., apparatus for, M. E. Jehu.....	514,079
Copper, etc., method of and apparatus for the electrodeposition and refining of, L. S. Randolph.....	514,275
Copy holder, E. Kelsey.....	514,194
Copying press, letter, J. H. Taylor.....	514,204
Cork making machine, E. Grant.....	513,988
Corset stays, machine for making, H. C. Cook.....	514,213
Corset steel, C. Scholl.....	514,242
Coupling. See Bathing apparatus coupling. Car coupling. Hame coupling. Insulated pipe coupling. Cradle or crib, extensible, C. B. Adriance.....	514,401
Cradle, hydraulic, G. W. Zastrow.....	514,261
Creamery apparatus, G. T. McLauthlin.....	514,071
Cruiser, W. W. Sly.....	514,210
Cultivator, G. Clark.....	514,210
Cultivator, straddle row, G. M. Clark.....	514,209
Curing iron, D. Barrett.....	514,450
Currycomb, W. Ransweiler.....	514,051
Curtain or shade rollers, adjustable hanger for, S. R. Smith.....	514,046