Business and Personal Wants.

READ THIS COLUMN CAREFULLY,—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. **In every case it is necessary to give the number of the inquiry.**

MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 8480.—Wanted, address of a manufacturer of a machine for making wooden meat skewers.

For hoisting engines. J. S. Mundy, Newark, N. J.

Inquiry No. 8481.—Wanted, manufacturers of elastic bands for hose supporters.

"U. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 8482.—Wanted, manufacturers of portable fire-wood saws.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 8483.—Wanted, the addresses of the Birkeland E. Y. de Process, also the apparatus for the artificial production of nitrates.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 8484.—Wanted, machinery for carding, spinning and making twine, rope and plaited cord, from cotton, mohair and Angora goat hair.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

Inquiry No. 8485.—Wanted, rotary engine for oil or alcohol.

Headquarters for new and slightly used machinery, Liberty Machinery Mart, 138 Liberty Street, New York.

Inquiry No. 8486.—Wanted, makers of typewriter ribbons.

Metal Novelty Works Co., manufacturers of all kinds of light Metal Goods, Dies and Metal Stampings our Specialty. 43-47 S. Canal Street, Chicago.

Inquiry No. 8487.—Wanted, manufacturers of devices controlling valves by electricity.

The celebrated "Hornsby-Akroyd" safety oil engine. Koerting gas engine and producer. Ice machines. Built by De La Vergne Mch. Co., Ft. E. 138th St. N. Y. C.

Inquiry No. 8488.—Wanted, machines for grinding graphite and pulverizing minerals.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machine work and special size washers. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

Inquiry No. 8489.—Wanted, second-hand drop hammer heads.

Inquiry No. 8490.—Wanted, manufacturers of electrical heating appliances.

Inquiry No. 8491.—Wanted, a power punch about 20 inches to 24 inches throat and punch a ½ inch hole in ⅜ inch iron, new or second hand.

Inquiry No. 8492.—Wanted, manufacturers of croquet supplies.

Inquiry No. 8493.—Wanted, a mill for shredding and grinding alfalfa hay into ground feed.

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.

(10221) A. H. asks: Please describe how salammoniac is obtained or produced. A. Salammoniac is prepared from the ammonia water of the gas works, by the addition of hydrochloric acid.

(10222) E. B. S. writes: I have a dynamo that gives 25 volts and will light two 16-candle-power lights. Must the light be rated at 25 or will it light two 110-volt lamps and how many one-candle-power lamps of 100 volts will it light? A. Your dynamo, rated at 25 volts, will do anything which a pressure of 25 volts will do. but it cannot do work requiring 100 volts. It cannot light any 110-volt lamps. The lamps for this dynamo must be 25-volt lamps.

(10223) E. L. S. asks: What is the voltage of the hand-power dynamo in "Experimental Science" when wound as directed with No. 16 wire on fields and No. 18 armature? What sizes of wire should be used to give an E.M.F. of 25 volts? About how much wire will be required in each case? A. The hand-power dynamo gives about 3 amperes at 12 volts. The voltage would be doubled by doubling the number of turns on the field. For the field as designed, about 5½ pounds of No. 16 B. & S. wire are required, and for the armature about ½ pound No. 18 is required.

(10224) J. W. J. asks: Have you plans in any of your SUPPLEMENTS of a dynamo that will charge storage battery described in SUPPLEMENT No. 1195? If so, state what number or numbers? A. The dynamo described in SUPPLEMENT No. 600, price ten cents, will charge the storage battery of SUPPLEMENT No. 1195.

(10225) A. W. P. asks: 1. I am building a 10-inch spark coil, and wish to insulate it with some kind of oil. I have allowed an inch space between primary and secondary, in addition to a thin fiber tube enveloping the primary. I have tested linseed oil (boiled) and kerosene, finding the latter a somewhat better insulator; but the odor is more objectionable. Can you advise me on the subject? A. Any heavy petroleum oil is a good insulator for a coil immersed in it. We do not know how to get rid of the odor of any oil. If inclosed in a tight box the odor will not be perceived very much in the room. 2. I have seen several accounts of Roentgen rays producing acute dermatitis and causing the hair to fall out. Will you please explain to what extent this danger exists, and what means, if any, may be taken to prevent its occurrence? A. The danger of producing X-ray burns is very imminent if the operator is inexperienced or the tube is not properly shielded. The best mode of avoiding these burns is to have an apparatus which will do its work so quickly as to not produce them. It is, however, prudent to cover the patient in the parts exposed to the rays with a piece of aluminium foil which is grounded to a gas or water pipe or has a wire carried to earth. 3. In an interrupter where the circuit is quickly broken under water, is it necessary that the contacts be made of platinum? A. The same heat is produced in breaking a certain current under any circumstances. If water is interposed the heat is carried away more readily, but the spark and heat of the break is able to burn the wire, and platinum should be used for the terminals.

(10226) J. E. P. asks: 1. In substituting a button to throw the drop at the central telephone station, how many Mesco dry cells will be required instead of the magneto-electric machine usually used in small towns? A. This depends upon the distance from the central, and the number of telephones in series if the line is a party line. It may be that a small number will do the work. Experiment is the solution probably in this case. 2. What cells would you consider preferable for this charge? A. There are a number of dry cells differing but little from each other. We have no recommendation to give to one of these over another.

(10227) G. S. T. writes: Will you kindly give me your opinion of the following statement made here to-day: That a cube of iron one inch square, being dropped overboard at the greatest known depth of the ocean, would not sink to the bottom, but that there is a depth where it would be held in suspense. A. The cube will drop to the bottom of the ocean at the greatest depths. Anything that is heavier or has a greater specific gravity than salt water sinks to the bottom at all depths. The compressibility of sea water is only about 0.000044 of its bulk per atmosphere of pressure and not materially denser at great depths; thus at a depth of a mile its density would be only about 1-130 greater than at the surface. Sand and mud sink to the bottom of the ocean at great depths, and shells are dredged from the deepest seas.

(10228) C. R. M. asks: I want to get the table for carrying capacity of copper wire and German silver wire. I have seen tables run as fine as 26 B. & S. gage, but not any finer. I would like to get a table or a way to figure for finer wire if possible. I also would like something on the size of wire to use on motors and dynamos. A. A finer wire than No. 18 has no carrying capacity, since its use is not allowed by the fire underwriters for wiring buildings. The wires in dynamos and motors are selected on the basis of 2,000 to 3,000 amperes per square inch of cross section in ring armatures, and even 4,000 amperes in drum armatures. In magnet coils only about 2,000 amperes per square inch is allowed.

(10229) A. L. S. asks: 1. In the engineering notes of your paper for September 28, 1901, there is a paragraph on obtaining oxygen from the air, stating that it can be mixed with water gas for lighting. Is not this an explosive mixture? A. A mixture of oxygen from the air and street gas is explosive in certain proportions; but in the burning of these in a jet the fire cannot get at the mixed gases till they are ready to be burned, as in the calcium light jet. 2. Also, will you kindly give the principle of the Nernst lamp? A. The Nernst lamp employs a thread of a substance like that used in the Welsbach mantle. This, heated to a white heat, gives out light.

(10230) J. N. P. asks: Kindly furnish me with explicit definition of the term "equivalent focus," as applied to a compound photographic lens. Give one or more rules, as free from mathematics as may be, for accurately determining the equivalent focus of such a lens. Is the relation of diaphragm aperture to focal length of a lens based upon the actual or equivalent focus? How can we determine the diameter of the circle of illumination of a lens upon which its covering power is dependent, since this dimension varies with the distance between lens and ground glass? A. The equivalent focus of a photographic combination is "the focal length of the single lens which will produce the same sized image." This focus is measured from the optical center of the lens. It is not the "back" focus. Several methods are given for measuring the equivalent focus in Taylor's "Optics of Photography," price $1 by mail.

(10231) C. E. D. writes: It seems to me that you have not yet gotten at the gist of my query. I did not assert that the ice would not freeze to the cold spoon, but that it froze to the hot spoon in less time, as has been observed, not only by myself, but by many others under the conditions described by me. My two objects in writing were to bring before your readers a pleasant and simple cooling confection, very cheap, and also to find out why less time was required in connection with the hot piece of metal than if a cold piece was used. It is my belief that a hot spoon shapes the ice and thus gives a better contact and when lifted brings with it more ice than the cold one. This would seem to me to be the proper solution, but it does not alter the fact that of the two spoons introduced at the same moment, the hot one will have the more ice clinging to it when withdrawn. If you did not find this phenomenon, then you have not carried out the experiment as I have regularly done. A. In the question under consideration, the action of chipped ice and sugar mixed upon a hot and a cold spoon, we did not intend to misrepresent your position in the former letter. We quote: "The ice ought to be just as cold and just as liable to attach to the cold spoon as to the hot one—in fact, more so; but it does not do it." This certainly seems to us to say that the ice does not freeze to the cold spoon. As you now say you did not intend it so, we do not insist on the point. It is clear that nothing can freeze to ice till that thing is cooled to the freezing point. It is also clear to us that the ice which is attached to the hot spoon is not frozen to the spoon but simply sticks to it. We note that you now do not say "freeze" to the hot spoon, as you did in former letters, but "the hot one will have the more ice clinging to it when withdrawn." This is quite true, as we observed, but since this clinging ice was not frozen to the spoon at all we paid no attention to it. It simply clung to the spoon by surface tension and capillarity. That was all there was to that. We froze pieces of ice to the cold spoon and to the hot one after it had cooled. The hot spoon, as you say, melts the pieces of ice into better contact and so they adhere to it more closely when it cools. We must confess we do not see any mystery or puzzle in the action. There are many instances in which ice freezes to the object with which it is in contact, if only a thin film, or pellicle of water can come between them. If no film of water can be formed between the two surfaces no freezing will take place. Lumps of dry ice in a place below freezing will not freeze together, unless pressure is exerted to bring them together.

(10232) A. O. asks: Can you furnish drawings and directions for building a small generator for charging storage battery cells, such as are used on automobiles? Have you a revised edition of "Experimental Science"? I have a copy of the 1890 edition. Would like to know where I can buy storage battery plates, etc.—something up to date. A. Our SUPPLEMENT No. 600, price ten cents, gives plans for a dynamo giving 50 volts and about 10 amperes. This would charge twenty cells in series. If you have any such number of cells to be charged this would answer very well for the work. With a smaller number a rheostat may be used to take up the excess of voltage, and so any number of cells in reality may be charged up to twenty, the capacity of the machine. We have not the plans for a machine especially designed for charging batteries.

NEW BOOKS, ETC.

THREE MEN IN A MOTOR CAR. By Winthrop E. Scarritt. New York: E. P. Dutton & Co., 1906. 8vo.; 267 pp.; 16 ill.

This is an interesting and instructive little volume by the foremost apostle of the automobile in America. Mr. Scarritt has owned and operated more than twenty different makes of cars in the past six years, and his description of his first machine, contrasted with the auto of to-day, shows vividly what progress has been made. The book deals mainly with a trip around Europe in a modern motor car. Not only is it full of descriptions of scenery and the writer's impressions, but it gives much practical advice upon touring and the transport of a car to Europe and back. When *en route* and stopping at the best hotels, the three men found that it cost them $12 per capita per day, all expenses included. A good chauffeur can be hired for $5 a day, for which he will board himself. The book concludes with chapters on early American automobiles and automobile races, and a prophecy of what is to be the future of the automobile in this country.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending November 13, 1906,

AND EACH BEARING THAT DATE

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

Acetates, making, H. O. Chute 835,501
Aerophone, L. De Forest 836,015, 836,072
Air-moistening device, A. Leyerle 835,542
Air tension motor, G. P. Brand 835,774
Alkaline bicarbonates, manufacturing, J. G. Behrens 835,771
Alloy of iron and hydrogen and producing the same, article of, A. Bontempi 835,495
Amusement apparatus, C. F. Ritchel 835,638
Animal trap, H. F. Harfst 835,521
Animal trap, M. J. E. Thorer 835,874
Annunciator, train, E. A. Everett 835,605
Arch, reinforced terra cotta, J. Comerma 835,663
Ash pan and adjustable hopper for the same, collapsible, E. A. Bagby 836,002
Assorting apparatus, F. F. Backstrom 835,805
Atomizer, A. C. Eggers 835,882
Automobile frame, A. B. Morse 835,547
Bags, means to facilitate the opening of, W. L. Fross 835,673
Baling press, M. C. Nixon 835,632
Baling press, H. A. Starr 835,646
Bandage, finger, B. A. Paroubek 835,980
Barometer, W. C. Plank 835,983
Bearing, spring neck, P. T. Sundberg 835,739
Bearing, thrust, G. E. Franquist 835,853
Bed, folding, J. A. Dewey 835,817
Beet topper, B. L. Chambers 835,600
Bellows, J. T. Hill 835,617
Bicycle, Hornecker & Blankenheim 836,040
Billiard cue, J. Aderjan 835,489
Billiard cue tip, F. W. Schroeder 835,736
Block. See Building block.
Boat, J. N. Huff 835,530
Boat, life, O. Brude 835,498
Boiler flue expander attachment, D. M. & A. C. Remson 835,556
Book leaf or the like, flexible, G. Higginson 835,887
Bookcase, sectional, Faust & Brolin, 835,507, 835,508
Bookcase support, sectional, F. W. Tobey 835,582
Bottle, anti-refillable, F. Margert 835,862
Bottle attachment, W. D. Chappelle 836,013
Bottle attachment, C. L. P. Handy 836,033
Bottle cleaning and rinsing apparatus, A. A. Pindstofte 835,866
Bottle closure, valved, A. H. Lewis 835,706
Bottle, ink or mucilage, J. C. W. Miller 835,972
Bottle, mucilage, R. E. Kuter 835,955
Bottle, non-refillable, H. J. Mortensen 835,548
Bottle, non-refillable, G. B. M. Pike 835,553
Bottle, non-refillable, B. Sharp 835,643
Bottle, non-refillable, A. C. Way 835,995
Bottle, non-refillable, Behrmann & Redefeld 836,005
Bottle or other receptacle stopper, L. Ganucci-Cancellieri et al. 835,822
Bottle stopper, Davis & Stetson 835,783
Bottle stopper holding device, W. R. Briggs 835,497
Bowling alley, E. Powers 835,554
Box opening device, G. C. Weber 835,649
Brick machine, S. S. Gardiner 835,674
Bricks, stone, and artificial tone, treating, T. D. Ball 835,742
Briquet molding machines, Simmons & Garside 835,737
Bronzing and dust-removing machine, combined, M. Fritsche 835,883
Brooder, chicken, C. F. Snover 835,871
Broom holder, F. H. Bellman 835,725
Brush holder, tooth, W. E. Lawrence 835,732
Brush, tooth, C. D. Miller 835,709
Bucket, clam-shell, W. B. Skinkle 835,567
Buckle clip, E. F. Gingras 835,752
Building block, M. Eckley 835,669
Building block, J. A. Douglass 836,017
Building construction material, G. F. Thorn 835,717
Butter fat from cream or milk, extracting, G. W. Renyx 835,890
Can and other vessel, W. J. & G. A. Stewart 835,573
Capping device, automatic self heating, W. F. Hebrank 835,614
Car bolster, H. M. Pfager et al 835,552
Car coupling, F. Schatzka 835,560
Car coupling, J. & J. O. Timms 835,581
Car draft gear, railway, J. Lange, Jr 835,540
Car fender, K. M. Stahl 835,571
Car, hand, G. E. Lunceford 835,965
Car, railway, Howard & Pflager 835,527
Car, railway, C. H. Howard 835,528
Car, railway, L. J. Harris 835,905
Car, sleeping, D. S. McEwing 835,799
Car stake and strap appliance, flat, A. S. Beville 835,930
Car stanchion, adjustable, W. K. Cleveland 835,881
Cars, sand delivery box for railway, J. Roediger 835,917
Carbureter, A. Clement 835,880
Carbureting air and other gases, automatic apparatus for, E. Bouchaud-Praceiq 835,745
Carousel, H. H. Pattee 835,864
Carrier, A. P. Boyer 835,780
Cart, dump, L. H. Young 835,999
Cast-off hook, R. F. Bartel 836,004
Caster, C. A. Baker 835,492
Casting machine, rotary, A. Schiepe 836,053
Cattle guard, Johnson & Pinckney 835,953
Centering construction, A. L. A. Himmelwright 835,524
Chair, J. L. Newell 835,976
Chest, tool, E. V. Hill 835,616
Chimney, H. T. Keltie 835,792
Chimney cap, E. J. Cochran 836,014
Chopper. See Cotton chopper.
Churn, L. Soseman 835,568
Churn, A. L. Blalock 835,846
Churn dasher, E. A. Franklin 835,672
Cigar cutter, double, J. L. Obermayer 835,912
Cigar tip cutter, Hiering & Fuller 836,037
Circuit, alternating current pole changer, E. H. Smythe 835,870
Clamp, A. F. Bramhall 835,809
Clevis, slip, W. M. Deming 835,666
Clock, electric, P. G. Giroud 835,516
Clothes drier, P. Foy 835,671
Clothes line hook, E. Miller 835,971
Clothes pin, C. J. Ingersoll 835,757
Clutch, Winton & Anderson 835,721
Clutch mechanism, A. C. Hendricks 836,035
Coke drawing machine, Cooney & Mitchell. 835,811
Collar, fold, J. M. Beiermeister 835,594
Color spraying apparatus, H. Mikorey 835,888
Color spraying device with interchangeable color receptacle, hand operated, H. Mikorey 835,708
Column cap, J. R. Gray 835,884
Column for building construction, G. F. Thorn 835,718
Compass, mariner's, F. A. Strassweg 835,840
Concrete covering for structural members, reinforced, R. Anderson 835,723
Concrete, tension member for reinforced, J. Kahn 835,758
Concrete wall, Little & Gavett 835,827
Concrete wall construction, E. F. Wiederholdt 835,769
Concrete work, temporary framing for use in, R. Anderson 835,724
Conveyer, bucket, R. Martin 835,798
Conveyer, grain drill, F. C. Collins 835,810
Conveying materials, apparatus for, H. Horn 835,526
Cooking utensil, A. M. Andersen 835,876
Cooking utensils, mantle or jacket for, G. Sesseli 835,715
Copying machine, R. Schweers ..... 835,[illegible]
Corn-husking machine, N. Malone 835,707
Cotton chopper, A. H. Connell 835,664
Cotton linters, float drive for, J. W. Kimbrough 835,538
Cotton picker, R. W. Ivy 835,949
Cotton press, H. A. Baker 835,897
Couch and bed, convertible, L. Williams 835,770
Counter seat, T. Truax 835,992
Coupling pocket, W. E. Coffin 835,726
Crate, C. W. Stevens 835,921
Crate, H. L. & H. Brockschmidt 835,932
Crate, collapsible, J. G. Penrod 835,733
Crate, egg, R. K. Gregory 836,029
Crib, G. E. Easley 835,819
Cuff holder, F. W. Barrett 835,593
Cultivator attachment, L. R. Greer 835,676
Cultivator replanting attachment, T. C. Swartz 835,988
Cultivator, riding, E. Stevenson 835,572
Curtain fixture, H. M. Sturgis 835,576
Cut-out, R. A. Baldwin 835,493
Damper, N. Pruitt 835,915
Dental tool, J. E. Argue 836,001
Dental trial plates, instrument for softening, J. Miller 835,628
Detinning, Goldschmidt & Weber 836,028
Diamond sawing machine, W. Loesser 835,964
Die press, G. Goldman 835,753
Disk drill, J. M. Pierce 836,051