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. 4138.—For manufacturers in New York of advertising novelties. horse and cattle foods, boots and American vehicles.

AUTOS.—Duryea Power Co., Reading, Pa.

Inquiry No. 4139.—For makers of machinery for manufacturing paper from wood pulp.

Morgan Emery wheels. Box 517, Stroudsburg, Pa.

Inquiry No. 4140.—For makers of umbrella machinery.

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

Inquiry No. 4141.—For parties to make a direct force pump.

For bridge erecting engines. J. S. Mundy, Newark, N. J.

Inquiry No. 4142.—For the manufacturers of the "Crowell" positive pressure blower.

Coin-operated machines. Willard, 284 Clarkson St., Brooklyn.

Inquiry No. 4143.—For makers of chemical balances and reagents for chemical analysis.

Blowers and exhausters. Exeter Machine Works, Exeter, N. H.

Inquiry No. 4144.—For the manufacturer of the Buckingham typewriter.

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

Inquiry No. 4145.—For machinery for pasteurizing milk.

Partner wanted to defray cost patenting useful desk novelty. Box 24, Stroudsburg, Pa.

Inquiry No. 4146.—For makers of carding machines for wool, cotton, etc., also for makers of curled hair machinery.

Mechanics' Tools and materials. Net price catalogue. Geo. S. Comstock, Mechanicsburg, Pa.

Inquiry No. 4147.—For manufacturers of gas engines.

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

Inquiry No. 4148.—For makers of cheap, strong barrels. either metallic or wooden, for holding material in paste form.

Let me sell your patent. I have buyers waiting. Charles A. Scott, Granite Building, Rochester, N. Y.

Inquiry No. 4149.—For makers of small dredges, steam or gasoline engine.

Machinery designed and constructed. Gear cutting, The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y.

Inquiry No. 4150.—For manufacturers of cast aluminium numbers.

WANTED.—Agencies for American goods salable in Burma. Address J. Whitfield Hirst, Sule Pagoda Road, Rangoon, India.

Inquiry No. 4151.—For manufacturers of novelties, toys, tennis shoes for use on asphalt courts, etc.

Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 4152.—For makers of a combined potato and apple parer, corer, grater and slicer for family use.

Crude oil burners for heating and cooking. Simple, efficient and cheap. Fully guaranteed. C. F. Jenkins Co., 1103 Harvard Street, Washington, D. C.

Inquiry No. 4153.—For makers of small magnetic toys, such as steel horseshoe magnets, etc.

The largest manufacturer in the world of merry-go-rounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker. Abilene, Kan.

Inquiry No. 4154.—For dealers in an ink well patented June 23, 1896, No. 562,754.

Experienced mechanical draughtsman wanted. Permanent employment assured to rapid and accurate draughtsman. Mill Work, Box 773. New York.

Inquiry No. 4155.—For makers of superheaters.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

Inquiry No. 4156.—For a second-hand Star carpet beater, in good condition and cheap.

PATENT FOR SALE OUTRIGHT.—Agricultural machine of the greatest promise at a low figure with privileges of foreign patents. John Joyce, Box 773, New York.

Inquiry No. 4157.—For a swivel of the size used on double razor strops.

Contract manufacturers of hardware specialties machinery stampings, dies, tools, etc. Excellent marketing connections. Edmonds-Metzel Mfg. Co., 778-784 W. Lake Street, Chicago.

Inquiry No. 4158.—For manufacturers of cement.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, $5. Munn & Co., publishers, 361 Broadway, N. Y.

Inquiry No. 4159.—For makers of iron rolling barrels.

☞ Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Inquiry No. 4160.—For manufacturers of toy balloons.

Inquiry No. 4161.—For a light weight automobile engine of 40 h. p. to be used for motor plow.

Inquiry No. 4162.—For makers of special sized disks.

Inquiry No. 4163.—For the manufacturers of the front-cut rear-delivery automobile harvester.

Inquiry No. 4164.—For makers of molds for making plaster Paris and cement ornaments.

Inquiry No. 4165.—For makers of copper wire which will stand temperature of 500 degrees or more.

Inquiry No. 4166.—For makers of plumbers' supplies to furnish material to a master plumber.

Inquiry No. 4167.—For makers of pearl button machinery.

Inquiry No. 4168.—For machinery for making tar paper and roofing felt.

Inquiry No. 4169.—For makers of vinegar-making supplies and cordage machinery.

Inquiry No. 4170.—For makers of light wooden boats of different sizes.

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.

(9004) E. O. M. asks: 1. Suppose two wire circuit telephone lines to be well insulated. If the return wires of the two lines be connected, will static induction produce any sound on one line while the other is being used? A. Telephone lines are put up in the manner you describe and work well. The system is called the Common Return System. One wire answers for a return wire for a large number of telephones. You will find it described in Miller's "American Telephone Practice," price $3. 2. Is not the purpose of compound winding on a dynamo to secure the same number of ampere turns in the field at all loads? And if the ampere turns in the field and the speed remain constant, will not the potential always be the same? A. The compound-wound dynamo gives a better regulation of the voltage at varying loads than any other form of winding. Of course this results from the quicker adjustment of the field upon a change of load. The current through the series and the shunt rises and falls, but the total current through the field does not vary, and the ampere turns do not vary except within narrow limits.

(9005) L. D. asks: Would there be any difference in the register of a thermometer exposed to the north wind, and shielded from same, other conditions being the same? A. A thermometer takes the temperature of the place in which it is. Merely shielding it from the wind, conditions otherwise being the same, would not change the reading of the thermometer. Probably conditions could not remain the same for any length of time. The moisture of the air would change in a quiet space, and the heat radiated from the ground and surrounding objects would also affect the reading of the instrument.

(9006) H. T. R. says: In noticing questions 8794, page 48, January 17 number of SCIENTIFIC AMERICAN, would like to ask a few questions regarding the "water pail forge." 1. About what thickness should the sheet lead be? A. The sheet lead for a water pail forge may be of any thickness, since it only acts as a conductor, and is not used up by the current. Lead 1-16 inch in thickness is ample. 2. What do you call common washing soda? A. Washing soda is carbonate of soda. We supposed it was kept at every grocery in the country. If not available, throw a handful of common salt, table salt, or cattle salt into the water, and it will answer just as well. It serves to render the water a conductor of electricity. 3. How can I find the specific gravity of water and know when it is at 1.15? A. The specific gravity of water is unity, or one. The density of all other substances is compared with that of water. If you follow the above directions, you need not know the specific gravity of the liquid. A handful of washing soda will do as well as a handful of salt. The quantity is entirely immaterial; several handfuls may be used if you wish. Put in all you please, till no more will dissolve. 4. How can I find the positive and negative wires of a 220-volt direct current line that we have in our shop for lighting purposes, and will a current of this capacity answer as well as if it were near the generator? A. If you have not a pole detector of some kind, you cannot determine which is positive, but you can proceed as follows: Connect up to the line without reference to the polarity of the wires, and try the bar in the pail. You will know if you are right by the sudden flash of light and great heat produced. If there is only a simmering in the pail, with little light and heat, reverse the connections. Connect the rod to be melted to the wire which was attached to the lead, and the lead to the wire to which the rod was attached, and try again. You will not have to try but two ways; one must be right.

(9007) M. E. S. writes: Our Masonic lodge has an arc stereopticon which works fine with one exception—our electric light system is alternating, which causes a loud humming or buzzing when using the lamp that is extremely amazing. What I want to know is, can anything be done to do away with the noise? Any suggestion will be very much appreciated. A. You cannot do away entirely with the humming of an electrical arc lamp run upon an alternating current. The alternations themselves produce the musical tone. A short arc will, however, run more quietly than a long one.

(9008) W. F. W. asks how to ink typewriter ribbons. A. Take vaseline (petrolatum) of high boiling point, melt it on a water bath or slow fire, and incorporate by constant stirring as much lampblack or powdered drop-black as it will take up without becoming granular. If the fat remains in excess, the print is liable to have a greasy outline; if the color is in excess, the print will not be clear. Remove the mixture from the fire, and while it is cooling mix equal parts of petroleum, benzine, and rectified oil of turpentine, in which dissolve the fatty ink, introduced in small portions by constant agitation. The volatile solvents should be in such quantity that the fluid ink is of the consistence of fresh oil paint. One secret of success lies in the proper application of the ink to the ribbon. Wind the ribbon on a piece of cardboard, spread on a table several layers of newspaper, then unwind the ribbon in such lengths as may be most convenient, and lay it flat on the paper. Apply the ink after agitation, by means of a soft brush, and rub it well into the interstices of the ribbon with a toothbrush. Hardly any ink should remain visible on the surface. For colored inks use Prussian blue, red lead, etc., and especially the aniline colors. Aniline black, ½ ounce; pure alcohol, 15 ounces; concentrated glycerine, 15 ounces. Dissolve the aniline black in alcohol, and add the glycerine. Ink as before.

(9009) A. W. says: In your column of answers to inquiries would you please give the chemicals used in the best portable fire extinguishers? Are the liquids employed liable to freeze at a temperature of 30 deg. below Fahr.? Would a metal vessel, well galvanized, be a suitable receptacle for the other liquids than the acid in the construction of a fire extinguisher? A. The Babcock fire extinguisher is charged with a solution of bicarbonate of soda in water and sulphuric acid in a lead bottle, which, when required, is turned over by a crank, spilling the acid into the charge of soda water. Carbonic acid gas is instantly generated, by which a pressure is obtained sufficient for throwing the whole contents of the apparatus with much force through a nozzle for fire purposes. Use of sulphuric acid, 5 parts, bicarbonate of soda, 6 parts, by weight. Other combinations are used, such as carbonate of ammonia, potash, etc. Iron can be used for the alkaline reservoirs.

(9010) C. M. writes: We have a gasoline engine, balance wheel 18 inches in diameter, ½-inch web, rim 2½ inches thick, one 5-inch wheel, and are desirous of running the same at speeds 1,000 to 2,000 revolutions per minute. We are aware that this will give us a speed greatly in excess of that employed in flywheel constructions. We shall be greatly obliged to you if you could give us your opinion in the matter by return mail. A. You can run your engine at 2,000 revolutions per minute with safety, if flywheel has no flaws. The centrifugal strain on the rim will be about 2,250 pounds per square inch, or one-seventh the breaking strain of cast iron.

(9011) J. W. W. asks for information in regard to the manufacture of ethyl alcohol from acetylene C_2H_2 or other gases in the electric arc. A. In the Willson process, calcium carbide is made in usual manner in the electric furnace. The acetylene obtained on treating the carbide with water is converted to ethylene by allowing it to pass through a solution of chromium and ammonium sulphates, maintained at a temperature of 40 deg. C. The ethylene is then absorbed in sulphuric acid, and the hydrogen ethyl sulphate produced is distilled after the addition of water. The ethyl alcohol obtained in the distillate is said to be very pure. With carbide at $20 per ton, the alcohol costs eight cents per gallon.

(9012) L. D. writes: Suppose that the temperature of a room is 60 deg. Fahr. and the relative humidity is 65 per cent and that the temperature of the air outdoors is zero. Now, when one scuffs one's feet over a carpet in the room, and then touches a brass object with one's finger, a spark called "electricity" is produced. Now, under the same internal conditions, but with the temperature outside at 50 deg., no such action takes place. Now, will you please tell me: Is the spark electricity? If so, how is it produced? Has the temperature of the outer air any effect on the action? If so, how, and why? How is the current powerful enough to pass from one's feet to one's hands? How does the current travel when one touches a brass gas jet on the wall? Does it go back to the carpet? If so, why can one get a "shock" by touching a piece of brass on a glass plate? When a motorman turns the lever of the controller to the first notch, do the motors take from the trolley wire the same amount of current as when they are running at full speed? In other words, is the same amount of current taken from the trolley wire, no matter at what speed the motors are running? A. When one with dry feet scuffs along a woolen carpet on a cold, and therefore probably a dry day in winter, both the carpet and the person become charged with electricity, the woolen carpet positively and the person negatively. When a person thus charged approaches a metallic object, such as a brass gas jet, his negative charge attracts positive electricity from the earth to the end of the jet nearest to him. When he gets near enough to the jet, a spark jumps across, discharging the electrical tension both of the person and the gas jet. We call the spark "electricity," but it is matter which the electricity causes to shine. We do not see electricity. This can be done only in cold dry air, since moisture upon objects discharges electricity or prevents it from collecting and remaining upon objects. Such a current of electricity can flow with ease through a person, and a person standing on a woolen surface can be charged from head to feet by scuffing the feet over the wool, since wool is an insulator. We need not suppose that the current finds its way back to the identical spot on the carpet on which the feet scuffed. The carpet is in contact with the earth, and the earth is the great equalizer of electrical charges. We would suggest the attentive reading of Thompson's "Elementary Lessons in Electricity," price $1.50 by mail, in which all these phenomena are fully discussed, and principles given. The street car controller generally is arranged so that at first the two motors are in series, with an external resistance. Next they are in series with no external resistance. They are then put in parallel with an external resistance, and last they are thrown on the lines in parallel with no external resistance. They then get full current and go at full speed. You will see the reduction of resistance at each step of the controller, and as the resistance is reduced the current is increased. Your question is answered, No. Through a high resistance less current must flow than through a low resistance. This is in accordance with Ohm's law.

(9013) W. P. S. asks: Which will subject the chain of a bicycle to the greater strain or tension—one with large sprocket wheels, or one with small sprocket wheels? The gear of the wheel and load remaining the same, and other things being the same. A. The small sprocket wheels give the greatest strain on the chain, and in proportion to their diameter.

(9014) H. M. K. says: Is all the water which is found in pipes conveying natural gas, due to the gas cooling and thereby depositing its moisture, or does a minute portion of it accumulate there through capillarity from without? A. The water found in the pipes conveying natural gas is the condensation from the cooling of the saturated gas, or possibly a small portion of water jetted from the bottom of the pipe by the velocity and pressure of the gas flow. There can be no capillary seepage through the pipes in ordinary ground; the internal pressure would prevent this.

(9015) H. R. says: Will you inform me of the effect steam will have in extinguishing fire in a building, i.e., if fire should be discovered in a room 50 x 100, and the steam from a 4 x 16 feet boiler under 80 pounds presure would be exhausted into the room through a 1½ or 2-inch pipe, would the steam have a tendency to extinguish the fire, or only be an obstacle to fighting it in other ways? A. Steam has been long in use for extinguishing fires in factories, and is considered of great importance in saving the water damage by the sprinkler system. The steam pipes should have valves at the different stories on the outside of the building, of easy access, with a main valve at the boiler. A room 50 x 100 feet should have two or three nozzles 1¼ inch.

(9016) L. L. Says: 1. In No. 13, dated March 28, you state that April moon will be full on the 15th; how can an eclipse occur April 11? A. An eclipse of the moon cannot take place four days after the full moon. The date for full moon in our issue of March 28 was a misprint. The moon was full April 11, and the eclipse occurred the same night. 2. How many seconds does it take a wireless message to cross the Atlantic, and how long for the same distance per wire? A. It is not supposed to require even one second for a signal to pass across the Atlantic Ocean by wireless telegraph. The speed is probably only comparable with that of light. 3. Arctic explorers state that after the sun has set and twilight gone, it would be dark if it were not for the aurora borealis; where is the moon, and why is it never mentioned by them? A. We were not aware that Arctic explorers "never mention the moon" as shining above the horizon in the Arctic night. It passes around the sky in 29 days, and is above their horizon one-half of that time each lunation.

(9017) A. S. Co. says: Please advise how to generate hydrogen gas in small quantities for experimental purposes. A. Hydrogen is best generated from granulated zinc and hydrochloric acid, by chemical action. The acid furnishes the hydrogen. Put a handful of granulated zinc in a bottle and pour water enough into the bottle barely to cover the zinc. Have a stopper for the bottle with two holes, through one of which a "thistle" tube is passed nearly to the bottom, and through the other of which a bent glass tube is put just reaching through, to which a piece of rubber tubing is attached to lead the hydrogen to a receiver for storing it. Pour in some of the acid, and a bubbling will begin. When all the air is out of the bottle, the gas may be passed to the receiver. Do not collect mixed air and hydrogen. An awful explosion may be produced by this means. You would better get Remsen's "Chemistry," and study in detail the method of handling gases before attempting such work. There is too much danger of accident.