

Inquiry No. 927.—For the address of the manufacturer of "Smith's Perpetual Calendar." Inquiry No. 928.—For manufacturers of long wood handles for feather dusters. Inquiry No. 929.—For the address of the manufacturer of the Diesel motor or oil engine. Inquiry No. 930.—For manufacturers of aluminum tubing and piping and fittings for light machinery. Inquiry No. 931.—For manufacturers of novelties for mail order and advertising purposes. Inquiry No. 932.—For large lathes and planers. Inquiry No. 933.—For machinists' hand taps, stocks and dies for threading bolts and pipes. Inquiry No. 934.—For all sizes of nuts, locks, set screws, etc. Inquiry No. 935.—For standard taper pin reamers and steel taper pins. Inquiry No. 936.—For manufacturers of salt machinery. Inquiry No. 937.—For manufacturers of dynamo storage batteries and motors for running presses requiring one to two h. p. Inquiry No. 938.—For gasoline lamps which can be lighted without first heating the burner. Inquiry No. 939.—For a fixture of 10 lamps to supply a room with gas from one generator. Inquiry No. 940.—For a gasoline gas machine forcing gas through a house without generating same by heat, jets to be lit with a match. Inquiry No. 941.—For second-hand dealers in 12 to 16-inch wrought iron pipe. Inquiry No. 942.—For parties dealing in small engine castings and blue prints from which to build engines. Inquiry No. 943.—For an improved method of screening sand or gravel. Inquiry No. 944.—For manufacturers of cork in sheets of 4 x 12 inches by 1/4 inch in thickness.

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 This is for our information and not for publication.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

(8226) A. S. D. asks: By what method can I coat glass plates with a clear transparent coating of gelatine? I desire a transparent gelatine coating similar to the coating on the regular gelatine-coated dry plate as used by photographers, but without the photographic properties, simply a clear transparent coating of the same texture. I have used the clear gelatine with alcohol and water, but it cracks and peels up for me. A. If we wished plates coated with gelatine we should buy photographic plates and remove the silver with hyposulphite of soda. The gelatine would remain clear and transparent, and with a uniform thickness far better than we could hope to make it ourselves. We can send you descriptions of the process of coating plates in Supplement 272, 330, 467 and 1042, price ten cents each.

(8227) C. F. asks: 1. My son and one of his companions are making an electric motor as described in Supplement No. 641. They follow directions as they understand them, but are not quite sure if correct. For the field magnet they used 33 feet of Russian sheet iron (of No. 24), but does not make 7-16 inch in thickness as described. It weighs 5 1/2 pounds. Had they better put more iron to it so it will be 7-16 inch thick or is the 33 feet sufficient? A. The sectional area of the iron is important for the core of the magnet. Your boys had better wind on more wire to bring up the thickness to the specifications. 2. Does it make any difference if only one size of magnet wire is used to wind armature and field magnet? Have No. 18. Directions give No. 18 wire for winding the armature and No. 16 for the field. In list of dimensions of the parts the same size (No. 16) is given for both. A. The error in the size of wire is in the table of dimensions. The size of armature wire should be No. 18 as given in the description. 3. In winding the armature should the wire be wound tight or only moderately? So far in the winding the boys do not get as neat a job as they like to have, and suggest putting a strip of brown wrapping paper between every layer of wire: how would that do? A. The coils should be wound as tight as possible, and smooth. The high speed at which the armature turns makes it difficult to hold the coils in place unless they are well wound. It is not well to fill the space with paper, though if you get all the windings in and have space to spare, it may be done. 4. Is there any rule to calculate the area of a crescent? What is it? The water plant here has valves of different sizes (some are 4 inches in diameter) and a disk or circular plate a trifle larger is moved by means of a screw across the end of a 4-inch pipe, to open or shut off the water. Now how wide must this opening be to have the same area as 1-inch and 2-inch pipe? We can then calculate the

amount of water that will flow through the other pipes. A. The simplest method for obtaining the area of any shape not easily calculated is to cut a piece of card of the exact shape and weigh it carefully on a jeweler's or druggist's balance, if an analytical balance is not to be had. Then cut a piece from the same card of a known size, four or five square inches, and weigh this, from which the weight of one square inch of the card can be found, and the weight of the irregular piece also.

(8228) W. H. K. writes: I have a solution of cyanide of silver for electro-plating in a glazed stoneware crock. The cyanide seems to go through and settle on the outside of crock in a dry, powdery form. 1. What causes this action and what will prevent it? A. The solution should not go through the glazing. It may be that the evaporation causes some of the crystals to climb over the edge of the crock, and to form down the sides of the jar. 2. Is the strength of solution correspondingly weakened, and would any of the silver go through along with the cyanide? A. The strength of the solution is not reduced if the crystals are formed in the manner we suppose. The silver is in the form of cyanide of silver, and is one substance, inseparable, not two substances as you suppose. 3. At the bottom of page 7, Watt's "Electro-Metallurgy," is described a battery; in constructing the copper cylinder should the edges be joined by soldering or lapped and hammered together, or how? A. The copper is not joined at all in the Daniell's cell. It is a sheet of copper rolled into the form of a cylinder.

(8229) G. D. Y. writes: Your favor of March 21 received; would state that it was not a hydrometer manufacturer that I was inquiring for, but for a formula to be printed in the SCIENTIFIC AMERICAN of how to convert Baume degrees into specific gravity degrees. Kindly state also on what principle is the Baume scale based, and give rule of conversion of grain degrees of vinegar into Baume degrees or specific gravity. A. The Baume hydrometer was one of the earliest forms of the instrument. It is a hydrometer of variable immersion, but of constant weight. It always displaces the same weight of liquid. Its scale is made as follows: The instrument is placed in distilled water and the point to which it sinks is marked. It is then placed in salt water and a second point noted. The distance between these two points is divided into a certain number of equal parts and the rest of the tube is graduated with the same divisions. There are two Baume scales, one for light and one for heavy liquids. For light liquids Baume took zero point at the place where the instrument stood in a solution of 10 parts salt and 90 parts water. The point to which it sank in distilled water was called 10 degrees, and the scale was graduated upward throughout its length on this basis. For heavy liquids, the zero point is found by placing the instrument in distilled water. It is then placed in a solution of 15 parts of salt and 85 parts water and the point determined is marked 15 degrees. From the distance between these points one degree is found, and the scale is graduated downward throughout its length on this basis. Both scales are scales of equal parts, and the degrees are not the same in the two scales. For a hydrometer of variable immersion the specific gravity scale is not a scale of equal parts, since the bulb at the bottom is not as large as the tube. If one were made of the same size throughout its scale would be one of equal parts. These are often used in school laboratories for purposes of instruction. From the above it should be evident that there is no formula of conversion from the Baume to the specific gravity scale. Conversion is a matter of comparison, and not one of calculation. Our correspondent should purchase two hydrometers, one for light and one for heavy liquids, upon whose stems both scales have been placed by the manufacturer. Or he should purchase a reference book containing these tables. We have not space to reprint what is in every reference book.

(8230) O. E. writes: I have made a Wimshurst machine according to the description in "Experimental Science," leaving off the outside plates and built the rest as it is most commonly seen, but can get only one-half inch spark. Will you please state a few things that hinder these machines from working well? Does the thickness of the glass have anything to do with it? Why would not connecting the plates together, as they are by the iron shafts, be a hindrance? Is a friction machine in any way superior to the induction? Will condensers increase the length of these sparks? Will copper sectors answer the purpose as well as tinfoil or brass? A. From your letter it is not certain that there is any trouble with your machine. It has no Leyden jars, and cannot give any but the effusive discharge, which is never long nor loud, but is a stream of sparks only. The machine is also exposed to the moisture of the air because you have not provided a case for it. This reduces its efficiency. The glass should not be unusually thick; but the most important feature of the glass is that it should not contain any lead. Ordinary window glass may be worthless for this use. The iron shaft has no effect on the spark, since the glass is an insulator and the electric charge cannot pass from the glass to the shaft. A friction machine would be far inferior to an induction machine made from the same material.

The metal of which the sectors are made is of no consequence. Any metallic foil or very thin sheet which can be attached to the glass firmly is good for the purpose.

(8231) C. G. C. asks: I wish to build the small fan motor described in the SCIENTIFIC AMERICAN, by George M. Hopkins, and would like to know whether strap iron of the same width and thickness as stovepipe iron would answer as well for the armature? A. Yes, any good quality of sheet iron will answer the purpose.

(8232) L. H. E. asks: Will you kindly tell me how to ascertain the horse power of an electric motor? A. To find the horse power of an electric motor measure the amperes it is taking and the voltage of the current. Multiply these numbers together, and divide the product by 746. That is all. It is very simple.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending June 18, 1901, AND EACH BEARING THAT DATE.

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

Table listing inventions with patent numbers and names of inventors. Includes items like Abrasive sleeve, Acid concentrating apparatus, Alarm, Animal trap, Automatic brake, etc.

Table listing inventions with patent numbers and names of inventors. Includes items like Cooking utensil lid, Corset fastening, Counterpane, Cream separator, Cyclone motor, etc.

(Continued on page 413)

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Table listing various items and their prices, including tile mold, elastic wheel, tire, machine, rubber, solid rubber vehicle, tires for applying taped or wired, tonges, tool holder, toy, locomotive, truck bolster, typewriter, type-writing machine, umbrella support, upholstery apparatus, valve, pressure regulating, vapor absorber, vaporizer, vegetable topping machine, vehicle body, vehicle brake, vehicle coupling, velocipede crank mechanism, vending apparatus, vessels, vote recorder, wad feeding device, wagon brake, wagon wrench, waist holder, wall, partition, slab, block, etc., wardrobe, water cooler and filter, water gages and cocks, water motor, water tube boiler, waterproof method and compound, wave power, weighing appliance, wheel track coverer, whiffletree, winding machine, window, wire reeling apparatus.

DESIGNS.

Table listing designs and their prices, including bake pan, bed bottom coupling stud, belt, bicycle frame, box, fabric, fire kindler, game board, gas vaporizing frame, glass, sheet, horseshoe heel pad, kneading board, monument for tombstone, piston head, sewing machine frame, syringe nozzle, urn jar, yase for cut flowers, washstand.

TRADE MARKS.

Table listing trade marks and their prices, including acids and other liquid chemicals, biscuits, blankets, woolen mills, books, butter, candies, cards, celluloid, coal, corn cures, cotton goods, flour, ice cream cakes, insulating papers, lanolin, Norddeutsche Wollkammerel, lenses, medicine, musical instruments, pipes, prunes, remedy for certain named diseases, salt, seeds, sheetings and drills, shoes, taffeta, underwear, washing powders.

LABELS.

Table listing labels and their prices, including 'Ashland Louse Killer', 'Ashland Stock Food', 'Ashland Stock Food Co.', 'Cairo', 'Catarrhol', 'Chapman's Brain and Nerve Food', 'Claus Spreckels', 'Eden', 'Ginseng', 'Keota', 'Maltoferin', 'Maple Belle', 'Princess Patent Invisible Eye', 'Schlegel's Lustre Metal Polish', 'Snomen', 'The Great Foot Elixir', 'The New King', 'White Crown', 'X Ray Stove Polish'.

PRINTS.

'E-Z' for men's hats, J. Glassheim & Sons. 362 'Hallanan's American Horseshoe Pads,' for horseshoe pads, M. Hallanan. 363 A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished from this office for 10 cents.

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