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A. P. will find an answer to his query as to a ball dropped through the earth, a vacuum being maintained in the hole, on pp. 138, 250, vol. 31.—D. O. F. will find the description of a method of putting a black enameled finish on cast iron on p. 208, vol. 26.—H. L. M. will find directions for polishing handles, etc., in the lathe on p. 138, vol. 28.— C. H. S. will find directions for preparing corn cobs for kindling on p. 325, vol. 26.—C. W. B. can mend his rubber boots by the method described on p. 203, vol. 30.—J. M. will find directions for making friction matches on p. 75, vol. 29.—S. T. is informed that there is no safe way of tampering with the natural change of color in the hair .- J. P. C. will find that the proper speed for a circular saw is given on p. 163, vol. 34.-C. B. R. will find directions for producing white enamel on iron on p. 362, vol. 32. This also answers H. W. P.—F. D. can remove rust from his steel tools by following the directions given on p. 56, vol. 33.-M. J. M. is informed that we cannot recommend a boiler scale preventive, as we do not know what is the injurious element in his water.—A. J. P. will find a solution of the wheel difficulty on p. 298, vol. 31.-D.C. can clean his tarnished plated goods by the method described on p. 251, vol. 33.-W. A. will find directions for making corn starch on p. 154, vol. 30. -H. B. L. will find full directions for soldering cast iron on p. 251, vol. 28.-H. B. C. will find full directions for bronzing castiron on p. 11, vol. 33.

-F. H. L. will find an article on the strength of cast and wrought iron at different temperatures on p. 43, vol. 30.—W. T. R. will find directions for cleansing mercury on p. 131, vol. 30. -F. W. D. will find directions for making a silver-plating solu-tion, for use with a battery, on p. 362, vol. 31.—I. B. & S. should apply to a toy manufacturer.-A. J. G. should read our article on the horse power of engines, published on p. 33, vol. 33.-C. D. F. is informed that we are unable to calculate the horse power of boilers from the dimensions and presture. No trustworthy formula for such a calculation has ever been laid down .- J. McE. will find directions for building a refrigerating room on p. 251, vol. 31.-B. H. Jr. is wrong in trying to remove hair from his face.—J. V. B. will find directions for producing a green bronze on brass on p. 51, vol. 33.-J. V. B. will find directions for polishing meerschaum on p. 155, vol. 31.-H. M. H. will find directions for making rubber cement on p. 119, vol. 28. The construction of an aquarium is described on p. 80, vol 31.-F. J. will find directions for transferring engravings to wood on p 138, vol. 30.-W. K. P. must use olive o'l and white phosphorus for his phosphorus and oil lamp.-A M. G. will find the required tables as to temperature and pressure of steam in Box's "Treatise on Heat."—W. R. M., H. G., H. H., E. H., G. A. B., W. & S., and many other correspondents who ask us to recommend books on industrial and scientific subjects should address the booksellers who advertise in our columns, all of whom are trustworthy firms, for catalogues.

- (1) E. W. H. says: In a recent number of the Scientific American appears an article under the head of "The New Phase of Electric Force." I tried the experiment, using a telegraph sounder. I arranged the wires so that the armature vibra ted. I now fastened a wire to the armature, but could obtain no sparks. I used three cups of Bunsen battery. What is the matter? A. Try again.
- (2) C. S. says: Please give me a formula for preparing a solution to electroplate zinc with copper. I have tried the usual cyanide of copper solution, with the peculiar result of first throwing down copper, which in a few moments turns to a bright yellow, like brass. What is my trouble?
 A. Dissolve ¼ oz. sulphate of copper for every pint of water; add ammonia till all precipitate is re-dissolved, forming a deep blue solution, then add solution of cyanide of potassium till this color quite disappears. Add ammonia and cyanide whenever required. When these are deficient the anode becomes coated with a blue powder. About two Grove or Bunsen cells will be reauired.
- (3) E. B. asks: Can steel knives be silver plated without putting some other metal on first? A. No, not so that the coating will adhere prop-
- (4) J. G. asks: 1. What size of wire i fine enough to wrap the electro-magnet of a Morse sounder? A. No. 18 will be found a confine venient size. 2. How many feet will it take? A Use 20 or 25 feet. 3. Is it necessary to cover the silver plate of a Smee battery with platinum? A. Yes, to get the best effect. 4. How is the Léclan-ché battery arranged? A. Manganese and carbon in the porous cell, the latter closed with pitch, and a zinc rod in the outer cell. Use a solution of sal ammoniac for the excitant.

I made a marine telescope for use in water, but

arrange a lamp inside it, and how? A. Some form of electric light might be used.

I made a phosphorus lamp, according to your directions, but it will not work. I boiled sweet oil, and poured it in the bottle on a small piece of white phosphorus. What was the trouble? A. Warm the bottle slightly by holding it in the hands or byplacing it in a warm place, away from the fire, for a short time: then expose the oil to the air by opening the bottle.

- (5) S. G. says: If oxygen and nitrogen are properly compounded, will they form an atmosphere that will sustain life? If so, why cannot they be used in sea diving? A. You propose merely to supply artificial air. There is no advantage in this, as common air may be pumped into the bell from above, or already stored there under pressure.
- (6) A. S. G. says: I have observed some points in experimenting with a small induction coil which seem neculiar, and I shall be glad if you can assist me to an explanation of them. With the current from a quart Grenet, the secondary sparks will leap nearly 3/8 inch when the battery is in its best condition. Of course, sparks pass freely between wires from the secondary poles, when brought within striking distance; a point which troubles me is that sparks are freely given off from one secondary pole when no circuit is made. A. The case is one of inductive action, and is observable with all high tension electrical apparatus. 2. Another peculiar phenomenon is that the primary current gives quite severe shocks. When the circuit-breaker (magnetic) is operating (no connection between the secondary poles) upon pressing a moistened finger on the thumb screw which governs the distance of the platinum point from the vibrator, and another on either of the humb screws of the battery, a current is felt, very similar to that from a medical coil, when the bundle of wires is pushed about half in. A. The shock is occasioned by the extra current. This is produced by the induction of the battery current uponitself, hightened, also, by the reaction of the agnetism in the core
- (7) C. I. H. asks: What is the matter with my battery? I have 4 cups (bichromate of potash) and I get a stronger shock with 2 cups than with 4 I use an induction coil ; the wires are No. 36 and No. 20. Arethesesizes right? A. If the wire of your primary coil were a little larger, we think you would obtain somewhat better results. It is quite likely that bad connections cause most of your
- (8) D. G. asks: 1. What is meant by a drop forging? Is there any way of driving hot iron (wrought) into molds to produce given forms, such as are difficult to forge? A. Yes. Drop forgings are forgings driven into a mold or form by a drop hammer. 2. What is cast cast steel? greater strength than iron, or is it simply harder? A. Cast cast steel is a casting made of cast steel It is much stronger than wrought iron, and is soft. 3. How does it compare with cast steel? A. It is cast steel of fair quality. 3. Is malleable iron strong enough to do good service with a thread and nut, or will it pull in two too easily? A. It is strong enough if sound.
- (9) N. L. C. asks: Why does cider made om sound apples in a hand press, and carefully bottled in clean bottles, have, year after year, a bitter taste? A. If it is as you say, we can give no reason.
- (10) L. B. says: I am framing a barn, and I vant to raise it with a pair of pulley blocks with 1¼ inch Manilla rope and a gin pole. The bents will consist of one beam 36 feet long, 9 x 9 inches, 2 posts 20 feet long, 9 x 9 inches, 2 posts under the peam 16 feet long dividing the 36 feet into three equal spaces, and three girths 5 feet 6 inches in each space. 1. Will a pair of pulley blocks that will carry that size of rope be strong enough? A Yes. 2. How large will I want the guy ropes to teady the pole, and how many are necessary? The blocks are what they call four fall. A. Provide four guy ropes, placed at equal distances around the pole, and so placed that the strain when the load is on will be borne by two at once; 1½ inch ropes will do for these. 3. Could I raise a barn that way by using a span of horses to pull with? A. Yes: but if you are shorthanded you had better raise your frame by single stick, which is now quite frequently practised. Set up a cor ner post and brace it both ways in its proper position; then set up the next post and brace it, putting the girt in its place at the same time; so pro ceed with the third post and girt; then put in your 36 feet beam and last girt, and set the remaining corner post. You will probably find this plan attended with less labor, and with less danger from accidents, than that of raising by bents. The heavy sticks may be raised by a pole and single pulley, if required.
- (11) W. H. K. asks: Can a person's beard be permanently destroyed without injury to the skin? A. Try thefollowing: Make a strong solution of sulphuret of barium in warm water; and when required for use, mix it into a paste with powdered starch and apply immediately. about 10 or 15 minutes, or sooner if much smarting occurs, the paste should be removed by means of warm water.
- (12) S. D. asks: Please inform me what will cleanse brass shells, used in breech-loading guns. A. We suppose you refer to the blackish carbonaceous crust formed on the surface of the shells, often to a considerable thickness. Try benzine or benzole, and finish with dilute nitric acid applied with a piece of cloth.

What will clarify or bleach chicken oil? A. There is no chicken oil sold in the New York market. Send a sample of what you wish clarified or bleached.

(13) A. P. D. asks: Will hard water do to I cannot see much, as the water is muddy. Can I use in an aquarium? A. Yes.

- (14) H. S. asks: 1. I have been trying for ne time to obtain flowers of any desired co Where can I find the explanation of the meaning of color, and the conditions under which a given color is present? A. The information asked for is to be partly found in a resume, published in the "Quarterly Journal of Science" (Vol. XL., 1873, p. 451), of an investigation by H. C. Sorby on this subject. He found that the most important coloring substances met with in plants are insoluble in water, but soluble in bisulphide of carbon. He also made a series of determinations of the amount of coloring substances by obtaining solutions of the same tint, but of different depth. The total number of the fundamental coloring substances of plants isolated in this manner is about 12; for their names and properties see "Proceedings of the Royal Society," Vol. XXI, p. 442. 2. If mix two different colors or paints I get a color different from the two. Now if I, by some means, extract one of the colors, would I not get the two colors separately again? A. Yes. 3. Can I not extract something from any color so as to charge the original colors? A. Yes. 4. I have the impression that black is no color and white is all colors. Is this so? A. Black is the absence of color, and white is the mixture of all the spectrum colors. 5. I have been trying to make a plant digest certain substances through the aid of a galvanic battery. Has this ever been tried? I know it to be possible, for I have obtained such results. A. What are the results spoken of?
- (15) F. C. B. asks: How can I make an ink for stamping buckskin and chamois leather, that will not smear? A. From the nature of the material it is a somewhat difficult matter to get a perfectly clear and legible impression from any hand stamp of ordinary description, no matter what kind of ink is employed. If a ribbon stamp, however, be employed, and an ink of sufficient fluidity, a clear imprint may be obtained without difficulty. It is requisite that the print should not be handled until the ink has sufficient time to dry. This drying, it is hardly necessary to add, will be much accelerated by a moderate warmth.
- (16) G. C. says: I tried the following for nickel plating: "Take 4 parts nitrate of nickel, 4 parts liquid ammonia, 150 parts water, and 50 parts sulphate of soda." I could not get the nitrate of nickel, but was told that sulphate of nickel was the same thing, and I used it. It quickly made a thin coating of nickel, but I could not get it any thicker, as the solution crystalized and covered the articles and the anode all over with crystals 1/4 of an inch thick. The anode was granular nickel in a cotton bag. Can you tell me the reason of that? A Thefollowing is recommended highly: 21/2 parts sulphate of nickel and 1 part sulphate of ammonia, dissolved in enough water to keep the solution just below the point of saturation. This will diminish the tendency to crystallize. Use two or three Bunsen cells to start with; a single Smee cell will answer for the main deposit.
- (17) J. E. B. asks: What are the solvents of pure asphalt? A. Asphalt is the term given to solid bitumen. The bitumens differ in the facility with which they are attacked by solvents. Most of them are in great part dissolved by ether, mixtures of ether and alcohol, turpentine, the essential oils, benzole, naphtha, etc.
- (18) C. F. L. says: Our town authorities are talking of supplying the town with water by a pump or water ram, from a stream 1,000 feet distant to a hill 115 feet high, thence from a reservoir by pipe, 800 feet, to the streets, and up and down the streets, 2,000 feet more or less. The town is from 80 to 100 feet below the bill. Will pipes from the reservoir under that head be sufficient to put out fire, or would it be better to attach a large force pump to one of the water wheels and force the water through pipes to different parts of the town? A.The town of Rahway, N. J., and several other places are provided with what is said to be a very economical and effective system of water supply. It consists of a stationary engine supplying a certain number of millions of gallons of well water per day, at a certain pressure agreed upon, and which is at all times sufficient to force the water to the upper stories of the houses in the most elevated sections of the town. This is known as the Holly system, and would probably suit you better than any other. In case of fire the pressure is maintained at its maximum by means of the control obtained through the stationary engine. Write to Holly Manufacturing Company, Lockport, N. Y.
- (19) M. O. R. says: I am about to build an engine 6 x 8 inches. I intend to have the steam ports 1/2 inch wide and 2 inches long, and the exhaust port 2 inches wide and 2 long. Will the ports be long enough for the engine? A. Make your steam ports % wide and 3 inches long, and the exhaust port 11/4 wide by 3 inches long.
- (20) J. W. Jr. says: In one of your back numbers you say that the scent of the hay flower can be made of the bark of the marie. Please give me the directions. A. The plant is one new ly discovered, and we have no description of it at hand. The statement that it may be employed as a source of the perfume "new mown hay" is made
- by a French perfumer. 1. What preparation is put on the sensitive plate for an instantaneous photograph? A. No photograph is actually instantaneous, although the time of exposure may be reduced to a very small fraction of a second. There must be a slide attached to the camera front, so arranged as to give a very brief exposure. Use a neutral new 30 grains bath, a bromo-iodized collodion justold enough to work, a plain iron developer, and a lens giving a strong bright image. Give a very brief development and see that the image is strongly and evenly illuminated. A collodion containing 5 grains ammonium iodide and 3 grains ammonium bromide to the ounce works well. 2. What substance is put on the sensitive plate after it comes out of the came-

Coffeepot, J. P. Whitlow...... 173,708

is composed of 2 ozs. protosulphate of iron, and 4 czs, acetic acid to 16 ozs. water.

(21) A. D. T. savs: I have a porcelain slate which has become so smooth that a pencil will not make a good mark on it. What can I use to give it a good surface to mark on? A. If the slate is really porcelain, try a little dilute sulphuric acid, which allow to remain in contact with the surface a short time. Then wash carefully with clean cold water and flow over it a little strong potash lye. Allow this latter to remain in contact with the porcelain for about half an hour, and then wash

(22) J. D. M. & Co. say: There is an article of vegetable origin used in Germany for cleaning kid gloves, and as a substitute for white of eggs in icing cakes. Can you tell us what it is? A. When the water that has been used to wash starch from wheat flour or scraped potatoes is allowed to stand until it becomes clear, and is then boiled, it assumes a turbid appearance, and deposits a flaky white substance, which has the same character as the white of egg, and is known as vegetable albumen. When dried, it forms a brittle, yellow, gummy mass, which dissolves in cold water; but when coagulated it will not dissolve in water, either hot or cold. The change of coagulation does not alter its composition. The temperature at which it takes place varies. A strong solution of the albumen in water becomes completely insoluble at 145° Fah. and separates in flakes at 167°. The more it is diluted with water, the higher the temperature of coagulation.

(23) H.O.R. says: I have a well 10 feet deep About 3 gallons of paraffin oil has leaked through the clay floor, 12 feet from it. Can you tell me how to clean it, and destroy the oil? A. The or dinary means of destroying or absorbing the oil would not answer in this case, and we know of no means of cleaning the well better than those usually employed. If you have at hand some absorbent clay or earth, it would assist you.

(24) P. S. says: 1. I have made a Daniell's battery, and am trying to make a Neef's hammer for producing shocks. Please explain the easiest method for making it, and how to make the con-nections of the wires from the battery and to the A. If you wish to produce shocks from a single coil in which there is an iron core, arrange the coil horizontally on a wooden base, fix a short round piece of soft iron to a spring, and fasten the latter to the base in such a position that the iron piece is within the attractive influence of the core. An upright withan adjustable screw, against which the spring rests when the battery is not in circuit, is also attached to the base back of the . Connect one pole of the battery to the upright carrying the adjustable screw, the other pole to one end of the coil, and the opposite end of the coil to the spring. By properly regulating the adjusting screw, the iron piece will vibrate rapidly; and if the hands grasp conductors in com munication with the upright and spring respectively, more or less intense shocks will be felt. 2. What form of battery is best adapted for producing shocks? A. Two or three Grove cells will answer. 3. Will silver answer the same purpose as platinum for the connections on the spring platinum point for breaking and making the circuit

(25) A. R. M. savs: How can I make a ce ment for sealing glass bottles that will not soften at a temperature of less than 250° Fah.? The stopper of the bottle is made of tin. A. Cut 3 parts of good india rubber into small shreds; dissolve it by heat and agitation in 34 parts of cold naphtha. Add to this 64 parts of shellac in fine powder, and heat thewhole, with constant stirring, until the shellac is dissolved. Then pour it while hot on metal plates, to form sheets. When required for use, heat to 250° Fah. and apply quickly.

(26) B. & F. say: 1. We are fitting up a line shaft to make 220 to 240 revolutions per minute. We think of putting in an engine of 10 or 12 inches bore by 24 inches stroke, running at 100 or 110 revolutions per minute, with an 8 feet fly band wheel, requiring about a 40 inch pulley on line shaft. Some of our friends say a shorter stroke engine will be more economical. If so, how much? And where is the economy? A. A shorter stroke will be more economical if you run your engine proportionally faster, so as to have the same speed of piston perminute, the economy being because the temperature of the cylinder will be maintained more equally, and nearly equal to that of the initial steam. 2. Would it be more economical to put on a smaller band wheel, with independent fly wheel? A. Yes, if the bearing surface of the working parts will stand the necessary increase of speed.

(27) A. B. asks: What is the property or substance in the human body that gives lead, inhaled or otherwise absorbed into the system, its remarkable noxiousness? A. The subtlety of the poison in the fluids of the body is brought about by the presence there of carbonic acid. The amount of lead which may be received into the body, and the length of time which must be consumed in its reception before symptoms of poisoning can be developed, is uncertain. These factors depend upon the peculiarities of the patient, the form under which the metal is introduced into the system, and the channel through which it makes its way. Sometimes a single dose (so to speak) will be sufficient to produce severe symptoms of poisoning, and again months and years may elapse before a man who is constantly at work will be at all affected by it. The excretion of lead after it has been received into the body is performed very slowly. In bad cases of lead poisoning, the metal can be detected in the urine a long time after the patient has been removed from the source of contamination. Parks mentions a case where a patient was exposed for the last time

ra to bring the picture out? A. A good developer to the influence of lead on December 20, 1852, and lead was found in the urine on June 16, 1853, before treatment had been commenced.

> (28) C. Y. asks: In Na₂ CO₃+10H₂O, how can I cheaply and expeditiously get rid of several equivalents of H₂O so as to get a dry, white, almost anhydrous powder? I wish to gain the same result (in large quantities) as by letting it effloresce in dry air. A. Crystallized carbonate of soda contains 62% per cent of water. The crystals readily effioresce in the air, and melt in their own water of crystallization. On decanting the liquid from the fused mass, it is found that one part of the salt has given up its water of crystallization to an other. By evaporation of this liquid, crystals containingone fifth less water than common carbon ate of soda are obtained. These do not effloresce in air. The same result may be obtained by heating the carbonate in a current of dry air for a short time.

> (29) W. T. S. asks: How can I produce a crystallized surface on tinned plate? A. Use a mixture of 1 part nitric acid, 3 parts hydrochloric acid, and 50 parts water. First clean the plate with a strong solution of potash in water. When the crystalline structure has become fully developed, remove the acid and wash in clean water.

> (30) J. G. says: I have a paint mordant which I cannot make work. This is the formula Mix 15 gallons water, 6 ozs. borax, and 3 lbs. silicate of soda. Heat until dissolved, then add 10 lbs. rosin, boil until dissolved. To this I wish to add rubber, but cannot dissolve the kind I have with benzine. It is old billiard cushions. How can I do it, and will rubber replace linseed oil and make durable paint? A. The rubber you mention is not suitable for the purpose. Use a purer rubber, and dissolve in the benzine by heat and agitation. This solution is not miscible with the solution of borax, water glass, etc., and will not replace linseed oil. 2. Would more water glass be of use? A. No. Shellac might replace part of the

> (31) A. F.O. asks: 1. What is the process for enameling on zinc in making faces for common clocks? A. The zinc disks are simply painted with white lead, containing sufficient zinc-white to maintain the requisite intensity. 2 How are the the figures put on? A. The figures are worked on with stencil plates and afterwards finished with a brush: and finally the whole is finished with a coating of good picture varnish.

> (32) E. C. N. asks: Why does paint which is made of pure linseed oil and lead affect young children and even some adults? A. There is no doubt that lead finds its way into the human body under certain conditions, and there produces a variety of morbid changes, which may in some instances terminate in death; for the metal has often been found after death in the muscles, liver, brain, and other organs. White lead paint is introduced into the body in three ways: First, by the lungs. This takes place chiefly among house painters, when the lead is mixed with turpentine in large quantities. In the evaporation of the latter, a small amount of lead is carried off, and is breathed into the lungs. Lead dust may be taken in the same way. The second way is by direct absorption through the skin. The third method is by the mouth. When the painter is careless about his personal cleanliness, and neglects to change his clothing at meal time, a considerable quantity of paint may be taken into the body with his food and drink. This is especially true of his midday meal, which in many cases is eaten on the spot where his work is going on.

(33) J. H. L. asks: In the process of making malleable cast iron, is soft or hard cast iron employed? A. A mixture of two good sorts of No. 2 pig iron and old scrap is used, the latter in the proportion of $\frac{1}{5}$.

(34) J. S. G. says: In reply to a correspondent who asked for the method of calculating lo-

garithms, you give the following: Let
$$a=$$
anynumber. Then $\log_2\left(\frac{a}{a-1}\right)=0.868589\times\frac{1}{2^2-1}+$, etc.

Why do you not tell us how you came by that number 0.868589? A. In the answer referred to, our correspondent only asked for a formula by which he could calculate the logarithm of a number. The demonstration of the formula would require considerable analysis, quite out of place in our columns, as the matter may be found clearly treated in a number of works, among which we may mention "Rudimentary Treatise on Logar-ithms," Weale's series, introductory to Law's "Tables," Hutton's "Mathematical Tables," Davies' Bourdon's "Algebra," and Todhunter's "Al-

(35) B. & H. say: Please tell us whether there will be any difference in the drawing power of two locomotives, of equal weights, etc., one of which has drivers of a larger diameter than the other. A. The smaller the driving wheel, the greater the leverage at which the power is working to the load, and hence the greater the tractive power.

MINERALS, ETC.—Specimens have been reeived from the following correspondents, and examined, with the results stated:

E. M.-It is red ocher.-H. W.-No. 1 is red oxide of iron or hematite. No. 2 is iron pyrites.—J. M. M.'s specimen is under examination, but no one has been able asyet to identifyit.—Specimen from Noblesville, Ind., is iron pyrites.—Specimen marked "Eberhart" is sulphide of antimony. One marked "Cannon" is green quartz marked on surface by oxide of manganese.

R. C. C. asks: What was the Egyptian mode of incubation ?-F. N. asks; How can I calculate the quantity of air that and the velocity with which it will pass through a given apertice at a given pressure?

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On Storm and Flood Signals. By A. W. On Cotton Factories in the South. By E. H. On Timber Waste. By H. C. B. On Bank Vaults. By J. K. On a Patent Pirate. By C. F. J., Jr. On a Mathematical Problem. By A. B. On Boiler Explosions. By A. C. On Centennial Circulars. By T. A.R. On Mohair Goods. By O. C. K.

Also inquiries and answers from the following: J. G. W.-F.W.-T. D. T.-E. H.-J S. W.-S. H.W.-J. L.-C. P.-R. F. J.-B. L.-C. K -T. C.-J. T.-T. H.-W. E. G.-B. D.-J. H. T.-G. C.-C. J, F.-W. T.-R. H.-S. S.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Whose steam boiler is the safest? Who sells ready made iron fences, posts and all? Who sells egg-hatching machinery? Who sells bookbinders' cloth, dyed with permanent colors? Who makes machinery for cleaning moss for upholstery? Who sells the officinal preparations of boldo? Who sells penholders which teach the proper position for holding the pen?" All such personal inquiries are printed, as will be observed. in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL.]

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