Business and Personal.

The Charge for Insertion under this head is $1 a Line.

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(1) G. W. says: 1. I have thought of making a cistern of brick inside of a series of grate and stove flues, running from the cellar to the top of a dwelling. Can I make it with iron hoops, strong enough to be safe when filled with water to a hight of 25 feet, using water lime in laying the brick and plastering inside? My object is to prevent freezing and to economize in room and brick by combining the cistern wall with the inside walls of the flues, thus making a reservoir for water by letting it run from the roof and thence to any part of the house, through pipes, properly arranged in the walls and secure against frost. A. By making the interior wall of the cistern of sufficient thickness to resist the pressure, such a construction is possible. But it is objectionable in two respects: First, the water at the bottom will be so low as to be capable of being supplied only to the lower part of the house; and secondly, the column of water will be so extended when full as to cause an undue pressure at the bottom. Both of these objections will be overcome by adopting the usual tank at the upper part of the house, and the danger of freezing in such case is less than is generally supposed. 2. Can a four inch wall of brick be built around the outside of a wooden frame building, instead of siding the house with wood, anchoring the word to the frame occasionally? The object is to save painting; it would also be safer from outside exposure to fire. A. We consider such a construction very impracticable, as the unequal settlement of the diverse materials would cause them to separate, and thus in a very short time cause the house to have the appearance of a ruin. The expense of making the wall entirely of brick, moreover, would not be much greater.

(2) W. L. says: In order to ventilate and carry off a portion of surplus heat in a small conservatory or greenhouse, I put a round ventilator in the ceiling, 18 inches in diameter, carrying a sheet iron tube of the same size through and about four feet above the roof, with a cap. The room is heated by a double tier of hot water pipes. Contrary to my expectations, instead of having an upward draft, the cold air blows down the shaft during a windy day, and on still days is sluggish and inert, affording no satisfactory ventilation. How can I obviate the difficulty? A. You do not say whether you have an opening to the outside air near the floor. If you have no such opening, we should suggest one as a remedy.

(3) A. C. R. says: No. 1 asserts that houses with cellars are healthier than those built without them; but No. 2 says the contrary, and that a house built on solid foundation without cellar is not likely to be affected by disease arising from impure air as easily as the house built on a cellar. Which is right? A. There have been so very few houses built without cellars that this question cannot be answered experimentally. If you fill a vessel with sand and then pour water into it so as to allow the latter to rise to within a short distance of the surface, you have a good representation of the way the water lies in the earth; but sometimes it is at one hight and sometimes at another. In some localities it lies deeper than in others. It this city, at one section, water can always be found within 6 feet of the surface; on the other hand, at Passaic Bridge, a well had to be sunk 60 feet before water could be obtained. It can, therefore, easily be inferred that the healthfulness of a house, having a cellar, will depend upon the nature of the soil in this respect, for it would make very little difference as to dampness, to a house at Passaic Bridge, whether it had a cellar or not. But answering generally as to cellars, if the first floor is set high up from the ground and is well ventilated beneath, the probabilities of health are in favor of the house that has no cellar.

(4) J. G. R. says: 1. In consequence of a too severe strain on our engine, the foundation wall is shaken. Can we remedy it by passing Rosendale cement (sufficiently diluted) into the cracks, or would it be better to bind it with bolts and plates? A. We think it would be well both to bind the foundation, and to fill up the cracks. 2. We have another foundation in which mine water has eaten the keys from the lower bolt ends, thereby causing the bolts to turn when the nuts are turned. Can I tighten the bolts in the masonry by pouring in a solution of sal ammoniac mixed with fine iron filings? A. We scarcely think you can use the sal ammoniac and iron filings, unless there is a good chance to make a driven joint. Melted sulphur will answer very well, if you can prevent it from running out of the bottom of the openings as it is poured in.

(5) E. M. asks: 1. What part of a horse power will it take to run a sewing machine? A. From 1-30 to 1-20. 2. What bore of cylinder would be the most economical to run 10 family machines? A. From 2 to 2½ inches will answer very well. 3. Will a ⅝ supply pipe supply steam enough for a 2½ inches cylinder? A. In general, yes.

(6) R. L. H. says: What is the difference in temperature, or relative heat, of the oxyhydrogen blowpipe and the common blowpipe? A. The temperature of the common mouth blowpipe at its hottest point is about 2,000° Fah. That of the oxyhydrogen blowpipe has never, we believe, been accurately determined.

(7) F. W. asks: 1. How can I cover muslin with a thin coat of gum? A. You do not state what kind of gum. 2. How can I color it black inside and a light yellow outside? A. We know of no better method than that of coating it with size, and then applying the desired pigment with a brush.

How can I clean dogskin gloves? A. We can recommend benzine for this purpose.

(8) J. G. C. says: 1. What is the relation of the magnifying lenses to the condensing lenses with regard to focus in the magic lantern? A. The relation depends upon the amount to which it is desired to magnify the objects placed before the condensers. To give the relation in any particular case, it is necessary to know the character of the lenses employed. 2. What is the use of the Lieberkuhn? A. The Lieberkuhn consists in placing the small lens in the center of a highly polished concave speculum of silver, by which means a strong light is reflected upon the upper surface of an object, which is thus examined with great ease.

(9) A. D. P. asks: What is the best method of separating gold and lead? A. By means of the cupel. There is no means easier or cheaper.

There is a rock in North Carolina called the cotton stone. What is it? A. Send us a specimen.

(10) C. A. asks: What kind of furnace or retort is used in making lampblack? A. The burning of the tarry and pitchy combustibles is carried on in any suitable furnace. The smoke is conducted through long horizontal flues terminating in chambers hung with sacking, upon which the lampblack is deposited.

(11) S. P. B. asks: What kind of steel are files made of? A. Generally from cemented steel, rolled or hammered. 2. What is the difference between cast and spring steel? A. The first is cemented steel, melted, cast into ingots, and rolled into bars. Spring steel is produced, according to Bauerman, by heating blistered steel to an orange red heat, and drawing down in size by hammering or rolling.

(12) T. A. C. says, in reference to lining shafting (p. 340, vol. 31): Suppose T. F.'s shafting is already up, and has got out of true: do not put him to the trouble of removing it from the bearings, but tell him to stretch a line parallel with the shafting, that is, equidistant from the ends, as close to the shafting and as near level with its center as the surroundings will permit. True it laterally by the line and then level it up. A. This is a good method for an experienced workman, but the other is best adapted for general use.

(13) I. G. H. says: To run a saw mill, we have an engine 14×36 inches stroke, with an 8 feet driving wheel, belting to a pulley on the main countershaft only, 3½ feet diameter, surface 15 inches. This pulley is so small (in order to give the necessary speed) that the belt will slip. Can we, by putting in another countershaft, improve the mill by belting from the engine, and then to the present shaft, thereby giving an opportunity to increase the pulleys to a size that will prevent slip? The engine is said to be 60 horse power. It is argued that this extra shaft would take so much more power that the engine would not drive the mill. Can you tell us about how much power it would consume to drive this extra countershaft, it being about 8 feet long? A. The change suggested would be a decided improvement; and instead of a loss, more of the power of the engine would be utilized than at present.

(14) E. C. D. Jr. asks: How can I test soda ash? A. The test is to find how many measures of diluted acid are required to destroy the alkaline reaction of and to neutralize 100 grains of a specimen of soda salt. The acid is measured in the alkalimeter, which is a straight glass tube, or very narrow jar, with a lip, about ⅝ of an inch in width and 14 or 15 inches in hight, generally mounted upon a foot, and capable of containing at least 1,000 grains of water. It is graduated into 100 parts, each of which holds 10 grains of water. To form the test acid, 4 ozs. oil of vitriol are diluted with 20 ozs. of water, or larger quantities of acid and water are mixed in these proportions. About ¾ oz. bicarbonate of soda is heated strongly by a lamp for an hour, to obtain pure carbonate of soda, of which 171 grains are immediately weighed, that quantity containing 100 grains soda. This portion of carbonate of soda is dissolved in 4 or 5 ozs. hot water, contained in a basin and kept in a state of gentle ebullition, and the alkalimeter is filled up to 0 with the dilute acid. The measured acid is to be gradually poured into the soda solution, till the action of the latter on test paper ceases to be alkaline, and becomes distinctly acid, and the measures of acid necessary to produce that change accurately observed. The last portions of the acid must be carefully added by a single drop at a time. It may probably require about 90 measures. In applying the test acid, it is poured from the alkalimeter, as before, upon 100 grains of the soda salt to be tested, dissolved in two or three ounces of hot water, the liquid being stirred with a glass rod after each addition of acid. The salt contains as many grains of soda as it requires measures of acid to neutralize it, and, therefore, so much alkali per cent. The first trial, however, should only be considered an approximation, as much greater accuracy will be obtained on a repetition of it. The experiment is often made in the cold; but it is very advantageous to have the alkaline solution in a basin, in which it is heated and evaporated during the addition of the test acid. The indications then become greatly more clear and decisive, both from the expulsion of the carbonic acid and the concentration of the solution. With such precautions the proportion of soda may be determined to 0·1 grain in 100 grains salt; and an alkalimetrical determination, made in a few minutes, is not inferior in precision to an ordinary analysis.

(15) B. L. H. asks: Is the pressure in a boiler greater at the mud valve than it is at the safety valve or other part of the boiler above the water? A. The pressure is greatest at the lowest point in the boiler, and least at the highest point.

(16) W. F. McK., H. B., and many others say: We are about to build small engines to drive lathes, etc. Please give the proper dimensions for a cylinder, say, 4 inches long. We want the dimensions of all the working parts. A. Make a drawing of a large engine of good design on a reduced scale. This will give you a fair idea of the proportions.

(17) H. B. asks: What sized boiler should I use, with how many flues, to furnish steam to two cylinders 2½×1½ inches? A. Make the boiler with from 18 to 20 square feet of efficient heating surface per horse power.

(18) A. B. C. says: We are sinking a shaft in very hard rock, below the 700 feet level. The shaft at the 700 feet and about 15 feet below is running at an angle of 59°, and is 8 feet long by 4½ feet wide in the clear. At the 700 feet, a tunnel was run in the hanging wall or side about 12 feet, when we cut soft ground. We want to get the shaft into this soft ground in order to sink it faster. How far shall we have to sink before we strike it, as we are now running at an angle of 54°? A. About 118 feet.

(19) E. W. M. asks: If a pipe from a large tank has a check valve placed at the end, and a pipe of the same diameter has a check valve on the same level as that in the pipe from the tank, the water in the tank and pipe being of the same head, on which check valve is the pressure the greatest? A. The pressure will be the same on each, and water will flow with the same velocity from each, if the heads are equal.

Is steam used for heating buildings ordinarily hotter than that which is used for working steam engines? A. No.

How can I whiten ivory after it has turned yellow? A. Rub it with pumicestone and water, and expose it to the rays of the sun in an airtight glass case. Repeat the operation several times, if necessary.

You gave a recipe for bluing glass chimneys; will not the heat cause the color to peal off? A. No.

What causes blistering on paint, when heat is applied? A. The moisture in the paint is vaporized.

You give a recipe for plating small articles without a battery, taken from Watt's "Metallurgy." Will that plating stand for 6 months with moderate handling? A. Yes.

(20) F. O. asks: How can I dye feathers to a red color, to be waterproof, for fishing flies? A. Take 1 oz. Brazil wood in powder, ½ oz. alum, ¼ oz. vermilion, and 1 pint of vinegar: boil them to a moderate thickness, and dip the feathers (they first having been soaked in hot water) into the mixture.

(21) C. D. asks: Can aluminum be worked? A. Yes, readily. In small quantities it costs as much as silver.

1. Will an engine of 2 inches stroke run a 6 inch turning lathe? A. Yes. 2. Should the engine be connected by a belt to the flywheel shaft of the lathe? A. You can use a belt from 1 to 2 inches wide, with a wheel on engine 8 inches in diameter, and another on lathe shaft of 6 inches.

Speaking of a 6 inch gear wheel, does it mean 6 inches in diameter over all, or from base of tooth to base of opposite tooth? A. It is the diameter of the pitch circle.

In what book can I find practical instruction for building model engines? A. We do not know of any that distinguishes a model steam engine from an ordinary one.

(22) N. J. J. asks: How many fish can be raised in a pond containing an acre of ground supplied with 100 gallons of water per minute? A. Try to raise as many as possible, and the principle of the survival of the fittest will regulate the matter.

(23) H. B. asks: 1. Will a cast iron shell turned down to the proper thickness do for a small boiler? A. It would be better, in most cases, not to turn it down at all. 2. What is used for packing the joints of a boiler three feet long? A. Rivet and caulk the joints. Ordinarily, no packing is used. 3. To what degree must iron be heated to melt common solder, and could soldering be used on boiler joints? A. To about 400° Fah. It could be used as suggested.

1. Is it possible to obtain good small sized castings of iron? A. Yes. You must have seen plenty, such as stove castings and the like. 2. Is copper cast? A. Yes. It is ordinarily sold in cast ingots.

(24) F. H. and others: It is always best to place the tightener on the slack side of the belt; and to get the greatest driving power, it should be placed close to the small pulley.

(25) J. B. P. asks: Does any harm arise from using, in the cylinder of a steam engine, a mixture of black lead, sulphur, and tallow, or black lead and tallow? A. With a surface condenser, the collection of the lubricant in the tubes sometimes causes trouble. Impure tallow frequently eats away the tallow. It is better to use good oil.

1. What is the best material for an idle pulley, used in a sawmill for transmitting motion to reverse the carriage? A. Cast iron. 2. What material is best for use in making a friction feed pulley in a sawmill? A. Cast iron. 3. Why do saws which have been worn down from 60 to 54 inches require hammering to make them run stiff enough to work? A. A saw is generally strained somewhat in the rim, and when run down it must be strained again.

I have a boiler, 14 feet long by 51 inches diameter, with 39 three inch tubes; outside diameter of tubes is 3 inches. The tubes are contained in that portion of the boiler below a line drawn 30 inches from bottom of boiler. How much water will it take to fill the boiler to a line drawn 2 inches above top row of tubes? A. You can readily calculate the volume of that part of the boiler diminished by volume of tubes.

(26) E. H. S. says: We have a schoolroom 39x23x about 14 feet. The acoustic properties of this room are very poor; at times it is hard for the teacher to make herself understood. What can we do to improve them? A. The echo has been destroyed or materially reduced in rooms of this kind by breaking up the reflex of sound, from the wall opposite the speaker, by wires. As has been explained in our previous issues, the manner of doing this, lately adopted in England, is to stretch the wires from floor to ceiling at about 6 inches apart, and, say, 6 inches out from the face of the wall. This may be tried at first for a space of about ⅓ the width of the room, at the center of the wall, and if found beneficial, afterwards extended.

(27) H. L. H. asks: How can I plate with nickel? A. Use the chloride of nickel for a solution with a nickel positive pole, and proceed in the same way as with silver plating.

(28) T. D. M. asks: Where is meerschaum found? A friend says that it is a clay in the ocean, and is washed by the waves to shore and collected in dust-like form. I think it is dug out of the earth. Which is right? A. The word meerschaum is German for froth of the sea, in allusion to its lightness and whitish color. It is a hydrated silicate of magnesia, and occurs in Asia Minor, in stratified earthy or alluvial deposits at the plains of Eskihisher, where, according to Dr. J. Lawrence Smith, it it has proceeded from the decomposition of carbonate of magnesia, which is imbedded in serpentine in the surrounding mountains. It is also found in Greece, at Hrubschitz in Moravia, in Morocco, and elsewhere.

(29) O. asks: 1. Is there any known process by which cotton seed oil can be thoroughly and economically refined? A. In the strictest sense, what is called by the trade refined oil is more or less pure oleic acid. This so-called refining of the oil is the abstraction of the dark color, accompanied by improvement in flavor, and may be accomplished by washing the oil in a solution of caustic potash or soda; but in nearly every case it will be previously necessary to submit the oil to a thorough steaming and washing with hot water, so as to remove from the oil as much as possible of the mucilaginous and albuminous matters, met with in the crude oil sometimes to a very large amount; if this precaution is neglected, there will be more waste, that is to say, a larger amount of alkali will be necessary, and in consequence thereof a larger proportion of the more solid fatty matter of the oil is abstracted. The mixed liquids—alkaline lye and oil—after having been beaten up together, separate in three distinct layers on being left to repose: the upper one is nearly colorless, so-called refined oil; the middle layer is the still yet dark colored, saponified solid fat of the oil, while at the bottom is found the dark, almost black colored alkaline lye. Owing to the great discrepancy of impurity of the crude oil (some being evidently pressed from the damaged seed) it is impossible to state exactly what yield of purified oil may be obtained. It has been found that under the most favorable circumstances 100 parts of the previously steamed oil yielded from 85 to 88 parts of refined oil. It has been found, in practice, that potash for some reason or other answers the purpose of cutting down the oil much better than soda. 2. What are the uses to which thoroughly refined cotton seed oil could be put? A. The refined oil is notoriously exported for the adulteration of olive oil.

(30) I. J. S. asks: Is there anything which will effectually destroy magnetism in steel parts of watches, except passing them through the fire? A. No.

(31) C. A. asks: How can I smooth the surface of a glass eye, it having become rough by reason of the wear of the eyelid? A. Try rubbing with a little putty powder.

(32) J. S. asks: What is a good book on astronomy, in which I could find the names and positions of the principal stars, and also the focus and power of lenses for telescopes? A. Try the "Handbook of the Stars," in the Cambridge series.

What is an argand burner? A. This is an arrangement for increasing both the supply of air and the burning surface of the flame. In the candle flame and gas jet, combustion takes place only on the outside. The argand burner has a circular wick by which a second current of air is admitted to the interior of the flame, thus burning with a double surface. The effect is increased by a glass chimney contracted so as to deflect the ascending outer current of air strongly upon the flame. Your other question should be referred to a physician.

(33) E. T. C. asks: How can I make ordinary dry Venetian red into a cake or ball suitable for use on a striking line, as a carpenter uses chalk? A. Make it into a thick paste with water, and dry.

How can I stain and polish a violin? What kind of varnish is used? A. Boil together Brazil wood and alum, and before applying it to the wood add to it a little potash. A suitable varnish for wood thus tinged may be made by dissolving amber in oil of turpentine, mixed with a small portion of linseed oil.

I have heard that split timber, such as spokes, would season much faster if set up on end to season. Is it a fact? A. Probably, from the larger surface exposed to the air.

(34) A. M. asks: How can I color gelatin? A. The gelatin is either melted or dissolved in a limited quantity of water, and the tint desired is obtained by adding one of the aniline colors. It is then poured on to a smooth warm iron plate and immediately poured off again, leaving a thin film still adhering to the plate. This is allowed to dry. It may then be cut into the required shape.

(35) S. F. B. asks: How shall I arrange to burn brimstone so as to whiten a hat by the fumes? A. Put a chafing dish with some lighted charcoal into a close room or large box, then strew one or two ounces of powdered brimstone on the hot coals, hang the articles in the room or box, make the door fast, and let them hang for some hours.

Is it not a good plan to hang the watch at night with the stem downwards, so that the bearings will wear on opposite side from where they do in the daytime while in the pocket? A. Possibly.

(36) S. S. W. asks: 1. Can neatsfoot oil be extracted from leather so as to be used again? A. Try boiling with water for a long time. The oil will be found on the surface of the water. 2. Can soap be made from the oil? A. Yes, with an alkali. 3. What is the mode of bleaching oil, and purifying it from foreign particles? A. By straining or filtering, and heating several times with equal quantities of rose water, with constant agitation.

(37) M. K. W. asks: We cannot make a portable gas machine work, as we do not know what proportions of sulphuric acid to use to a gallon of water. A. One part of acid is diluted with four or five parts of water. 2. What is carbon oil (used in the bottom as a purifier)? A. We do not know of any oil by this name. Benzine, naphtha, or gasoline will answer the purpose. See answer on p. 379, vol. 30.

(38) G. D. asks: If I place a lighted alcohol lamp under a glass receiver, it will burn a moment or two until the oxygen is exhausted; what is the difference in pressure per square inch of the air outside, and the air, *minus* oxygen, inside? A. The difference is proportional to the difference in volume; but what that difference is will depend upon the temperature, barometric pressure, etc. Alcohol is $C_4H_6O_2$, the carbon burning to form its volume of CO_2, equal to the volume of the 8 atoms of oxygen with which the carbon combines. The hydrogen in excess of $2H_2O$ forms vapor of water, which when condensed produces the diminution of volume noticed.

(39) J. S. P.—See the books on water colors and water color painting by Rowbotham, Findley, and Barnard.

(40) J. C. & Co. ask: Do you know of any method of keeping scales from the bottom of a boiler? A. We can recommend nothing better than a good feed water heater.

1. How much lower should the tail end of a 20 feet bolting reel be than the head for wheat flour? There is considerable difference of practice among millers, but one footfall will answer very well. 2. Why do some millers steam the wheat before grinding? A. We would be glad to hear something about this from millers who practise it. Your question as to power of engine is too indefinite.

(41) J. B. asks: How do worms get into apples? A. They eat their way in.

(42) O. P. asks: 1. What power is required to raise 100 lbs. 40 feet high in 4 minutes? A. $\frac{1}{33}$ of a horse power. 2. What power is required to raise 100 lbs. 40 feet high in one minute? A. $\frac{4}{33}$ of a horse power. 3. A balance (or any heavy wheel) starts slowly. What laws govern this force? A. The same laws as govern the raising of a weight equal to the resistance of the wheel.

(43) W. H. asks: How can I melt sandarac for making the polish for black walnut wood described by you on p. 315, vol. 30? A. Gum sandarac melts readily on the application of a moderate heat.

(44) M. T. asks: How is gun cotton made? A. Pour equal parts of strong concentrated sulphuric acid, of specific gravity 1·84, and fuming nitric acid into a porcelain basin; as much cotton wool is steeped in the fluid as the acid is capable of thoroughly moistening, and the vessel covered with a glass plate, and left for a few minutes. The cotton wool is then removed from the acid, immediately transferred to a vessel containing a large quantity of water, and washed with care, the water being renewed until no more acid adheres to the gun cotton, which is next dried in a current of warm air, and finally combed to remove all lumps. The cotton should not be left too long in the acid, as it becomes entirely dissolved.

(45) M. E. P. asks: Will it add to the power of an engine to increase the length of cylinder and of course proportion all other parts to the increased length of cylinder, the number of revolutions and the pressure of steam remaining the same? A. Yes.

(46) C. E. S. asks: 1. Can a young man of 3 years' experience in the engineering and draftsman's business, not a graduate of any college, enter the navy to work under some engineer in that business? A. We think it quite likely. Address a letter of inquiry to the Chief of the Bureau of Steam Engineering, at Washington. 2. How can he become a member of the Mechanical Engineers' Association? A. We do not know of any such association in this country.

(47) S. M. W. says: I am very desirous of having an electric light for use in illuminating a magic lantern and illustrating other objects in a schoolroom. What apparatus shall I require? Will a battery or an electro-magnet be best? How long will the battery run without being renewed, and what form of battery would be best? A. You require two pencils of charcoal or baked carbon, and a battery of 50 carbon cells. The battery will cost about $150. The length of time that the battery would last and cost of running it would depend upon its use. If you used it every evening for several hours, the battery would require to be renewed every day, at an expense of about $3.

(48) O. H. asks: 1. The weight of a pile driver is 100 lbs., falling 20 feet; what is the force of the blow? A. We do not know of any rules by which it could be calculated. 2. Would a weight of 500 lbs. increase the force to five times? A. Yes.

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

A. B. C.—Quartz rock.—R. M. K.—It is black oxine of iron.—W. F. B.—It is iron pyrites.—J. B. T.—It is called iron pyrites, and is composed of iron 46·7 per cent, and sulphur 53·5 per cent.—R. W. T.—No. 1 is datholite or borate of lime with native copper. No. 2, 3, and 7 are calamine or silicate of zinc. No. 4 is micaceous schist. No. 5 is siderite or carbonate of iron with red oxide of iron. No. 6 is conglomerate rock.—D. W. D.—No. 1 is clay mixed with scales of mica and impregnated with oxide of iron. No 2 is sulphide of lead or lead ore. No. 3 is striped jasper. No. 4 is black marble.—A. H. C.—It is not, as you suggest, either tourmaline, sphene, or zircon. It is pyroxene.—J. K.—The sample contained very few entire specimens of *pinnularia*, and it was much more difficult to obtain perfect specimens of *navicula*, which were also present. The amount of fine sand and grit present requires that the earth be treated with extreme delicacy and caution, for which reason we consider the deposit of little value.—A. W. H.—Chemical analysis of your specimen of soil shows the presence of common salt or chloride of sodium and traces of other chlorides. Along with these are the sulphates of soda and lime, also a small amount of alumina and oxide of iron. Particles of quartz, both white and colored, are mixed up with the powder, and shreds formerly belonging to plants and probably marine animals also.—The large beetle received some time ago without name or address is the *scarabæus tityris*, and the curious spider belongs to the genus *galeodes*.

H. P. asks: How can I imitate twist on the barrel of a gun?—G. F. C. asks: Can rosin be removed from varnish after it has settled and hardened upon it without injuring the varnish, for instance, from a violin that is varnished?—W. S. B. asks: 1. Has it ever been discovered whether there is an open polar sea at the south pole? 2. Did Captain Ross ever make any northern explorations?—L. McB. asks: What kind of varnish is the best for a violin? Should the violin be oiled before applying the varnish?—J. H. F. asks: Who was the discoverer of the method of manufacturing tinfoil used in America?—J. D. H. asks: 1. What can I put in aniline dye for coloring wood, so as to enable it to take a bright polish after being dried? 2. How can I stripe wooden balls in different colors, so that the colors will not run together, and will dry quickly?—H. P. L. asks: How can I make paper pulp from old scraps of paper?—F. W. D. asks: How are violins stained?—W. H. A. asks: 1. I want to make some piano wires. How is it done, and how are they tempered? 2. How can I plate steel wire?—F. N. D. asks: What is the rule by which paper can be cut so as to cover a globe?

COMMUNICATIONS RECEIVED.

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

On Shoddy. By J. L. N.
On Blast Furnaces. By E. J. H.
On Drawing in Education. By G. R. D.
On a Magneto-Electric Machine. By E. G. W.
On Cable Telegraphy. By G. L.
On Double Entry Bookkeeping. By S. G.
On a Wonderful Mechanism. By G. B. K.
On a Flying Machine. By T. H. C.
On Cast Iron in Boilers. By J. W. H.
On Curious Apples. By E. L. E., and by C. L. S.
On Zinc in Boilers. By J. W. C., and by L. T. W.
On Machine Belts. By J. R. P.
On Removing Snow. By ——.
On Boiler Explosions. By R. D. W.
On Modern Spiritualism. By S.

Also enquiries and answers from the following:
W. W.—M. C. G.—J. B.—J. K.—E. L. E.—A. H. M—S. L. G.—P. H. B.—V. W.—F. B. M.—F. W. P.—J. M.

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 enquiries analogous to the following are sent: "Who sells books on watch and clock making? Whose is the best work on oil painting as a fine art? Who sells double-barreled breech-loading hunting rifles? Where can chrome steel be obtained? Who makes the best lime kiln? Why do not manufacturers of explosives advertise in the SCIENTIFIC AMERICAN? Whose is the best rock drill?" All such personal enquiries 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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