Business and Personal.

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

J. E. S. will find a description of mica on p. 88, vol. 25.—J. J.'s proposition as to an astronomical problem is utterly unintelligible.—W. P. will find directions for black enamel leather on p. 122, vol. 27.—E. S. can bleach moss by using a preparation described on p. 91, vol. 28.—H. W. M. and W. J. will find a description of the art of molding or modeling on p. 58, vol. 24.—C. C. will find a recipe for solder for gun barrels and other iron and steel work on p. 353, vol. 27.—J. V. will find directions for japanning iron work on p. 208, vol. 26. Bronzing is described on p. 288, vol. 31.—J. J. McG. will find directions for cleaning brass and nickel plating on p. 370, vol. 26.—F. E. W. will find a recipe for indelible ink on p. 112, vol. 27. Japanning on iron is described on p. 122, vol. 27.—W. L. A. will find an account of the canal boat award on p. 81, vol. 30.—W. C. R. can keep the rust from his plowshares by following the directions on p. 288, vol. 31.—J. W. P. will find a rule for proportioning cone pulleys on p. 180, vol. 26.—J. H. D. will find explicit directions for constructing a cheap telescope on p. 186, vol. 30.—W. P. M. will find full directions for treating sumac on p. 363, vol. 31.—B. B. B. will find a formula for silver plating without a battery on p. 299, vol. 31. Galvanizing wrought iron is described on p. 346, vol. 31.—W. J. can temper his brace bits to a straw color by the method given on p. 21, vol. 31.—W. H. H. will find directions for making a good soft solder on p. 185, vol. 27.—E. E. H. should apply to the master mechanic of a railroad.—B. F. G. will find directions for nickel plating steel on p. 43, vol. 31. Polishing brass is described on p. 102, vol. 25.—A. S. G. will find full directions for etching on glass on p. 409, vol. 31.—J. E. will find rules for calculating the proportions of gear wheels on p. 330, vol. 24.—E. B. W. will find directions for mending rubber boots on p. 208, vol. 30.—J. C. H. will find full directions for stuffing and mounting animals on p. 250, vol. 30.—H. D. P. will find a recipe for scarlet ink on p. 200, vol. 30.—C. T. will find full directions for washing flannel and other woolen fabrics on p. 267, vol. 30.—H. F. H. will find instructions for gilding on walnut on p. 90, vol. 30.—E. B. M. will find directions for turning iron on pp. 76, 122, vol. 30.—M. B. can galvanize iron wares by the process described on p. 348, vol. 31.—D. H. M. will find a description of a simple and excellent filter on p. 251, vol. 31.—J. H. B. will find instructions for gilding on china and glass on p. 41, vol. 27.—J. J. and many others will find that the anti-snoring device is illustrated on p. 34, vol. 24.—F. W. will find a recipe for the logwood and copperas dye on p. 331, vol. 31.—A. G. S. and D. M. will find a formula for harness blacking on p. 218, vol. 28.—H. C. will find ample information on measurement of engine power on p. 16, vol. 29, and on indicating engines on p. 64, vol. 30.

(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.