Business and Personal.

The Charge for Insertion under this head is One Dollar a Line for each insetion. If the Notice exceeds Four Lines, One Dollar and a Half per Line will be charged.

Notes & Queries

L. S. will find directions for dyeing ostrich

feathers on p. 11, vol. 32.—A. W. will find directions for preserving natural flowers on p. 204, vol. 28.—G. D. will find instructions for tanning skins with the hair on on p. 233, vol. 26.—C. E. B. can drill glass by following the directions on p. 218, vol. 31.—B. M. M. will find a method of solving his trigonometrical problem in any elementary work on trigonometry.—L. W. will find instructions for constructing a windmill on p. 241, vol. 32.—W. M. will find a statement of the lifting power of hydrogen on pp. 74, 139, vol. 31. For a method of generating hydrogen, see p. 341, vol. 27.—A. C. will find directions for polishing artificial marble on p. 283, vol. 30.—E. A. H. will find directions for constructing a water filter on p. 282, vol. 34.—J. W B. will find directions for cutting and polishing agates on p. 138, vol. 30.—J. W. C. will find directions for arranging compound gears for screw-cutting on p. 107, vol. 34.—W. W. will find an article on the passage of water through orifices on p. 48, vol. 29.—O. J. P. will find directions for making skeleton leaves on p. 99, vol. 34. To bleach leaves, etc., see p. 405, vol. 34.—G. T. B. will find directions for kalsomining on p. 133, vol. 34.—S. S. will find directions for getting rid of echoes in large rooms on p. 139, vol. 35.—O. J. C. will find instructions for extracting sugar from beets on p. 264, vol. 28.—W. M. W. will find a description of a petroleum engine on p. 303, vol. 24.—M. W. will find directions for frosting glass on p. 264, vol. 30.—J. B. will find that an aqueous solution of dextrin will make a good mucilage for use in spatterwork.—J. T. R. can polish tin articles by following the directions on p. 57, vol. 34. For stove polish, see p. 219, vol. 31.—E. R. will find an article on the madstone on p. 266, vol. 26. Only ignorant people believe in its virtues.—E. J. B. will find a recipe for cochineal ink on p. 200, vol. 30.—T. K. 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H. will find a description of the compression engine on p. 66, vol . 34.—L. J. T. will find directions for hardening plaster of Paris on p. 43, vol. 34.—H. B. W. will find directions for soldering brass to steel on p. 251, vol. 28.—F. K. is informed that there is no rule for finding the horse power of a boiler.—C. T. D. will find a recipe for a white alloy on p. 139, vol. 31.—C. W. will find directions for calculating the teeth of gear wheels on p. 147, vol. 34. For proportions of speed pulleys see pp. 26, 73, vol. 25.—F. M. will find a good recipe for shoe blacking on p. 27, vol. 34.—M. J. H. can cut and polish stones by following the directions given on p. 138, vol. 30. To drill glass, see p. 218, vol. 31.—M. R. will find a recipe for a depilatory on p. 186, vol. 34.—M. A. will find recipes for fireproof cement for roofs and fireproof paint on p. 280, vol. 28.—G. A. C. will find an answer to his query as to a cannon on a car on p. 273, vol. 32.—J. H. B. will find directions for preserving ornithological specimens on p. 159, vol. 32. We know nothing of the process of inlaying which he describes; but it is easily tried.—G. H. can nickel plate his iron castings. See p. 186, vol. 34. Pure rubber is white when first made, but turns black after exposure to the atmosphere.—E. P. M. will find a recipe for a cement for leather belts on p. 300, vol. 33.—J. W. R. can copy his drawings with a pantagraph. See p. 179, vol. 28.—N. C. can clean and polish shells by the method described on p. 122, vol. 27.—P. F. will find directions for making condensed milk on p. 343, vol. 30.—W. D. will find a description of the Vienna bread manufacture on p. 240, vol. 34.—N. J. S. will find directions for making paste that will not sour, on p. 299, vol. 35.—P. M. will find directions for nickel plating with a battery on p. 186, vol. 34.—F. B. F. will find directions for constructing a windmill on p. 241, vol. 32.—S. R. will find a recipe for a black walnut stain for use on white wood, on p. 337, vol. 33.—D. A. L. & B. will find directions for precipitating lime from water on p. 379, vol. 35.—L. M. D. V. will find answers to his queries as to the sinking of a body in deep water on p. 208, vol. 33.—F. S. will find directions for making dried yeast on p. 204, vol. 33.—J. S., M. A. R., J. V., W. W., C. A. S., J. D. H., W. T. M., I. K. B., and others 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) R. N. says, in reply to E S., who requests a formula for finding the diameter of a pipe from its sectional area, that is, from the area of a circle to find its diameter. For all such calculations, I once devised a formula which is very convenient to carry in one's head; that is, add to the area ·273 of itself, and the square root of the sum will be accurate within ·0001. The convenience lies in this, that 273=3+90×3, so that 3 and 9 are the only numbers to be remembered. Thus, to find the diameter corresponding to the area ·78539816; multiply by 3, setting the product beneath and three places to the right; then multiply this product by 9, setting the new product beneath the former, but one place to the left; add up, and find the square root, which is less than ·0001 of 1 (the true value of the diameter). Thus:

Area	0·78539816
× 3	235619448
× 9	2120575032
	0·99981185768
Square root	0·999906

A similar formula for the diameter of a sphere of given contents is even more accurate. From double the contents subtract ·09 of said contents; the cube root of the remainder will show the diameter of the sphere within less than 1-40000th. Thus:

Contents	·523598775
Doubled	1·047197550
×·09	4712388975
	1·00007366025
Cube root	1.000024
Error	0·000024

(2) B. F. H. asks: Will an iustrument that will work on 500 feet wire work on shorter distances without addition of wire? A. Yes, on the shortest lengths.

(3) R. C. C. says: I have a glass jar (1 gallon) and a zinc cylinder, a porous cup, and carbon cylinder. Please inform me with what materials shall I charge them to make a battery? A. Put nitric acid in the porous cell with the carbon, and 1 part sulphuric to 20 water in the glass jar.

(4) E. R. B. asks: What is the best plan to put on a tin roof? Do you recommend the standing or flat seam? A. The flat clinched and soldered seam is the best. If the tin is brought down over the edge of the roof or gutter and carefully nailed, with the nails rather close, the wind will not get under it to blow it off. Every plate of the tin should be nailed to the roof, also, in laying it.

(5) A. E. G. asks: 1. Is it any advantage, in the construction of a refrigerator, to fill the space between the inner and outer box with some non-conducting materials? A. Great advantage. 2. Does not a confined stratum of air prove a perfect non-conductor? A. It is an excellent non-conductor. 3. Is there anything better for filling as above than cork chips? A. They answer well. Any non-conducting body containing in its pores large quantities of air, answers well, as charcoal, mineral wool, cork, etc.

(6) S. M. J. says, in reply to J. O. G., who says that you state that an English fire engine lifted water 32 feet in a perpendicular line, and inquires if it is possible for a fire engine with its many joints and imperfections to raise a column of water to that height, 32 feet, without the intervention of a foot valve in the suction). I am in charge of an English fire engine that has four lengths of suction, each 8 feet long, and a screen 1 foot 6 inches long, in all 33 feet 6 inches. I have stood on the bank of a river with the suction pipe perpendicular, with the exception of less than a quarter circle at the engine; and the suction pipe would not stay under water until I put a man to hold it under, after which I had no trouble whatever in raising water and working a fire not less than 600 feet from the engine.

(7) I. V. asks: How can I make the ink used with stencils? The kind I have reference to is in hard cakes and makes a plain and clear mark. A. It consists principally of lampblack, boneblack, sulphate of indigo, and dextrine or gum arabic, mixed well together, moistened, pressed into cakes and dried thoroughly. Another marking ink consists of lampblack and soap.

(8) L. P. C. says: Please state if oxygen can be made from saltpeter? A. Oxygen can be obtained readily from saltpeter by treating the salt above 660° Fah. in a glass vessel. The proportion of the gas, however, is much less in quantity than is obtainable from the chlorate of potassa, besides being contaminated by nitrites, free nitrous and nitric acid and nitrogen, which corrode the connections and render the gas from this source objectionable for many purposes.

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

J. N. C.—It is infusorial earth. See p. 240, vol. 35.—W. D. M.—No. 1 is black mica. No. 2. contains sesquioxide of iron, free sulphur, and clay (silicate of alumina). No. 3 is felspar containing crystals of red hematite (sesquioxide of iron). No. 4 is clay containing carbonaceous matter. No. 5 might be used as a polishing powder and in glass manufacture.—G. W. D. B.—Your sample of peat does not contain tannic acid; but like all bodies containing woody fiber, when subjected to distillation in close vessels or incomplete combustion in the air, pyroligneous acid may be found with the products, the substance may be made to yield a considerable quantity of illuminating gas, pyroligneous acid, etc., by proper distillation.—J. S.—Both of these are very fine granites. Granites consist of intimate admixtures of quartz, felspar, or orthoclase, and mica. Most of them contain here and there, especially after having been exposed to the weather, blemishes of carbonate of lime, traprock, greenstone, pyrites, large crystals of quartz, etc. There is no granite that we are aware of which is wholly free from these. Consult some good work on geology.

P. S. K. asks: How can I make a pianoforte sounding board, of wood, the four edge lines being one plane, and the middle rounded like the belly of a violin, without cutting or scraping the wood?—A. A. A. asks: 1. In making violins, what kind of wood is the top made of, and how is it stained or colored? 2. What is the best way of finishing violins, with shellac or other varnishes?—W. E. T. asks: 1. Please give me a good recipe for putting up spiced salmon and trout? 2. What is the proper mode of canning fresh mackerel?—A. C. W. asks: In playing a game of whist, my opponent on my right cut me the ace of spades three times running. What are the chances of such an occurrence?—E. A. H. asks: How is Indian corn hulled to prepare it for hominy?—S. W. G. asks: What is the best material for japanning or putting an enamel finish on stove plate?

COMMUNICATIONS RECEIVED.

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

On the First Steamboat on the Mississippi. By F. L. J.
On Boiler Explosions. By E. G. A.
On Aeronautics. By C. E. D.
On Bridges in Pennsylvania. By M. B. S.
On American Silk Manufactures. By L. L.
On Constructing Theaters. By S.
On the Keely Motor. By M. C.
On a Grain Dryer. By J. O'C., by R. S. E. and by S. S. S.
On a Flying Machine. By C. S. A.
On Weight on and in the Earth. By S. A. C.

Also inquiries and answers from the following:

J. M. A.—L. J. C.—J. F. W.—L. V. H.—S.—F. L. S.—W. C. T.—C. F. S.—W. O. L.—J. D. H.—J. M.—F. C.

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: "Who sells white litharge? Who sells convex glass, made to size? What is the cost of the finest glass per tun? Who sells chromate of lime? Who sells American cigarette or rice paper? Who sells old, straight-grained mahogany, suitable for stove patterns? 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.]

INDEX OF INVENTIONS

FOR WHICH

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November 21, 1876.

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

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