

Business and Personal.

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Power & Foot Presses & all Fruit-can Tools. Feracut Wks., Bridgeton, N. J. & C. 27, Mchly. Hall, Cent'.

Shingles and Heading Sawing Machine. See advertisement of Trevor & Co., Lockport, N. Y.

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Hand Fire Engines, Lift and Force Pumps for fire and all other purposes. Address Rumsey & Co., Seneca Falls, N. Y. U. S. A.

See Boult's Paneling, Moulding, and Dovetailing Machine at Centennial, B. 8-55. Send for pamphlet and sample of work. B. C. Mach'y Co., Battle Creek, Mich.

Steel Castings, from one lb. to five thousand lbs. Invaluable for strength and durability. Circulars free. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

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For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, &c.

Hotchkiss & Ball, Meriden, Conn., Foundrymen and workers of sheet metal. Fine Gray Iron Castings to order. Job work solicited.

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Spinning Rings of a Superior Quality—Whitinsville Spinning Ring Co., Whitinsville, Mass.

Diamond Tools—J. Dickinson, 64 Nassau St., N. Y.

Temples and Oilcans. Draper, Hopedale, Mass.



J. P. McD.'s query as to the velocity of thought is too metaphysical for our columns.—D. P. D. will find directions for transferring engravings to wood on p. 138, vol. 30. For transferring them to glass, see p. 123, vol. 30.—P. R. L. will find directions for dissolving mica on p. 241, vol. 32.—J. B. Jr., can preserve fruit by following the directions on p. 160, vol. 33.—L. L. F. should use the recipe given on p. 360, vol. 34, for renovating clothing.—A. P. W. will find a description of malleable glass on p. 402, vol. 32.

(1) E. S. B. asks: Will a projectile thrown upward in the air fall with greater, less, or the same velocity as that with which it ascended? A. The terminal velocity will be less than the initial. 2. What is the use of having the rifles of a gun barrel twisted? A. To give the bullet a rotary motion.

(2) J. B. M. asks: 1. Is it more injurious to track, bridges, and rolling stock to run loaded freight trains at the speed of from 30 to 40 miles per hour, than from 10 to 20 miles per hour? A. Yes. 2. Will it require more fuel to haul a loaded freight train 100 miles at the rate of from 30 to 40 miles per hour than from 10 to 20 miles per hour, all other things being equal? A. It is the general opinion of railroad men that the slower speed is the more economical, but there have been some recent experiments which point to the opposite conclusion.

(3) M. W. asks: What is the weight of a cubic foot of solid ice? A. About 57½ lbs.

(4) T. H. S. asks: Why do the dots on a telescope's joints have to be placed in a straight line? A. Because the tube is the straightest in this position.

How can I make sulpho-cyanide of mercury? A. Take the commercial sulpho-cyanide of potassium in ammonium, dissolve in water, and precipitate with bichloride of mercury; this precipitate is washed in several changes of water to free it from the chloride.

(5) A. S. asks: How can one reduce his weight without injury to health? A. Mr. Banting, an author on this subject, succeeded in reducing his weight some scores of lbs. by leaving off eating plain bread, potatoes, butter, fat meat, pastry, sweets, salmon, pork, and veal; and restricting his diet to fish, lean beef and mutton, and toasted bread or crackers, and fruit. He drank nothing with milk or sugar in it, nor any wine but claret, and no beer.

(6) E. L. G. asks: 1. Can the telephone arrangement, as noticed in SCIENTIFIC AMERICAN of August 1, 1874, be operated without a battery? It is for a distance not exceeding 100 feet. A. No. If not, is there any cheap reliable battery, easily understood by the average mechanic, not needing attention very often? A. The sulphate of copper battery is one of the best.

(7) J. F. A.—To find the diameter of a round opening having the same area as a rectangular one, divide the area by 0.7854, and take the square root of the quotient. Hard cast iron will probably be a good material for a nozzle.

(8) L. C. M. asks: Will a vertical steam boiler 30 inches high by 16 inches diameter, with 12 upright flues, 1½ inches in diameter, running the length of boiler, set on the lower half of a common coal stove, be of sufficient capacity to warm a house by hot water, the house containing 4 rooms, each 16 feet square by 9 feet high? A. If you have a strong draft, and a good arrangement of heating pipes, we think your boiler may answer.

(9) B. K. asks: Will common coach varnish do to varnish a poplar boat that is not painted? A. The best transparent coach varnish will probably answer very well.

(10) A. O. Y.—If you have written respectful letters to the Secretary of the Navy, as to entering the Naval Academy, and have received no reply, you might very properly address the member of Congress from your district in regard to the matter.

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 Medicinal Use of Chalk. By T. C. H. On a Grease Soap. By B. C.

On Liquid Glue. By D. W. P. A.

Also inquiries and answers from the following :

T. P.—J. H. N.—G. M.—G. S.—W. H.—S. P. F. F.—C. F.

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 Japanese lacquered ware? Who makes the best locomotive engines? Whose is the best achromatic telescope? Why do not wholesale druggists advertise in the SCIENTIFIC AMERICAN?" 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 expediently obtained.

[OFFICIAL]**INDEX OF INVENTIONS**

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

July 4, 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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