

Business and Personal.

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Pat. Att'y's & Experts wanted everywhere, to Coll't Millions. Good pay. Add. Am. Pat. Coll'n Co., Phila., Pa.

Agricultural Implements and Industrial Machinery for Export and Domestic Use. R. H. Allen & Co., N. Y.

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A Responsible Patent Right Manager Wanted—Carriages and R. R. Cars can be run without oiling. Address or call on Geo. Beck, Charlotte, Monroe, Co., N. Y.

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Models for Inventors. H. B. Morris, Ithaca, N. Y.

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Linen Hose, Rubber lined and unlined, for factories or fire engines, at lowest rates. Greene, Tweed & Co., 18 Park Place, New York.

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Driving Belts made to order, to accomplish work required. Send full particulars for prices to C. W. Army, 145 North Third St., Philadelphia, Pa.

Scientific American—The early Volumes for sale—very cheap—either bound or in numbers. Address A. F. R., Box 773, New York City.

Hydrant Hose, Pipes, and Couplings. Send for prices to Bailey, Farrell & Co., Pittsburgh, Pa.

Machine-cut brass gear wheels, for models, &c. List free. D. Gilbert & Son, 212 Chester St., Phila., Pa.

"Dead Stroke" Power Hammers—recently greatly improved, increasing cost over 10 per cent. Prices reduced over 20 per cent. Hull & Belden Co., Danbury, Ct.

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

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

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

For best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay, Brooklyn, N. Y.

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.

For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Bunting metals. E. Lyon, 470 Grand Street, New York.

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

Temples and Oilcans. Draper, Hopedale, Mass.

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them with the various solvents, such as water, alcohol, acid liquids, alkaline solutions, etc., until you discover the proper solvent. Then experiment with the solution obtained on woolen and other goods with the various mordants. 2. How can I separate nitric acid from a mixture without altering the nature of the mixture? A. You fail to state with what the acid is associated. It is necessary to know this in order to answer your question.

(2) J. W. and others.—We do not think that feathers are generally injured by steam heating. We believe this method is considered one of the best ways of purifying feathers.

(3) A. S. asks: 1. Is a person liable to get the hydrophobia from having been bitten by a dog entirely free from it? A. No. 2. How soon does it make its appearance? A. Sometimes years elapse, but it is oftener developed in a few days or weeks. 3. What are its first symptoms? A. It is characterized, as its name implies, by a singular loathing for water, also by violent spasms of pain in the spinal column and brain.

(4) J. W. W. says: A friend contends that whisky, brandy, etc., increase in strength after they are three years old. I contend that they continue to decrease as long as there is any spirit remaining. Which is correct? A. As far as we have observed, the liquors, if kept in barrels, decrease constantly in the percentage of alcohol by evaporation and otherwise.

(5) J. E. F. asks:—What can I mix with cotton seed oil, as a substitute for boiled oil in paints, and to make it act as a dryer? A. Litharge.

(6) A subscriber asks: Is it possible for an iceboat sailing in any direction to sail faster than the wind? A. Yes. On smooth ice, sailing at the proper angle, ice boats often move much faster than the wind. The wedge principle is involved. For example: a wedge two inches square at the head, six inches long, sloped on one side to point. If such a wedge be introduced between two sufficiently strong bodies, one of which is fixed, the other movable against the sloping side of the wedge: if sufficient force is applied to the movable body, it will expel the wedge, which latter must move six inches, during the same time that the impelling body moves two inches. The ice boat sail is the wedge, ice the fixed body, wind the force acting against the sloping side of the wedge.

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

J. M. N.—It is clay containing a large percentage of carbonate of lime.—E. W.—It is an trilobite, found in the older fossiliferous rocks. It was long supposed to be an insect fossil, but it was at length ascertained that it corresponded most nearly to the living genera of crustaceans, the *gerolls*, *lumulus*, *branchipus*.—D. K. C.—The specimen appears to be brown coal.—H. & J.—The specimen of clay is of unusual purity, and gives a very clear porcelain.—G. H. S.—Nos. 1 and 3 are magnetic oxide of iron (lodestone). No. 2 is spiegeleisen, a carburet of iron with manganese.—R. C. J.—Your sample appears to be a scrap of spiegeleisen—a carburet of iron.—F. T. M.—The water contains a considerable quantity of carbonate of iron in solution, which, on exposure to air, is precipitated by the escape of the carbonic acid with which the water is charged. The sediment consists of hydrated sesquioxide and carbonate of iron, together with some carbonate of lime. The water will be improved by the addition of a little lime water—not too much.—It. Y. G.—It is an impure clay containing iron. It might be employed for the purpose you mention. There is an alloy commonly known by the name of union metal.—We have received a slate pencil box, not labeled, containing a number of pieces of granite, gneiss rock, and hornblende.

J. A. P. asks: In making fruit butter, etc., I am anxious to know if the dried fruit is wholly used, or is there a mixture of both dried and fresh? Is it ground, or reduced by boiling, etc.?—A. R. asks: Can any one inform me of the process of making lager beer?—P. McS. O'F. asks: What purpose does the two-fold division of the back and belly of a violin serve? Is the belly carved or scooped out to the proper shape, or is the material steamed and then compressed to the required shape?—J. N. J. asks: How much does a wagon axle need to be set under, and why should not the under side be straight or level as it lays in the box? Does the concavity of the wheel make any difference as to the setting of the axle? Is not a straight wheel better and stronger than one that is concave?

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 Moon's Longitude. By J. H.
On Working Men's Education. By A. S.
On Weight on and in the Earth. By H. A. H.
Also inquiries and answers from the following:
G. F.—L. H.—H. T.—F. T. H.—E. C. W.—W. C.—C. C.—C. F. S.—J. E. K.—F. E. H.—M. D. H.—G. T. W.—J. F. C. G.—V. T. B.—G. W. P.

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 friction match making machinery? Who is the best railway ticket printing machine? Why do not makers of telegraph batteries advertise in the SCIENTIFIC AMERICAN? Who sells the best carriage varnish?" 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 Letters Patent of the United States were Granted in the Week Ending August 1, 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.

Table listing inventions with patent numbers and names of inventors. Includes items like Air brake relief valve, Air compressor, Alarm circuit closer, etc.

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Notes & Queries

W. C. W. will find directions for purifying his cistern water on p. 395, vol. 32.—R. C. C. will find a description of an incubator on p. 273, vol. 33.—E. F. Y. can waterproof his boots by following the directions on p. 154, vol. 26. Wire will do as well or better than string for the two cent telegraph.—G. P. A. will find a recipe for a durable paint for iron on p. 319, vol. 31.—W. R. H. is informed that a steam derrick is commonly used for raising a sunken ship.—A. P. M. can clean light leather shoes by the process described on p. 68, vol. 34.—W. C. M., J. C. L., J. H. D., E. L., R., J. H. P., & Co., S. & E., and many 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) F. McA. says: I have produced colors from a certain bug, and I have also procured a color from the gum of the fir tree. How can I tell whether they are dyes or not? A. Treat