

I run such a boiler safely for two hours with one filling? A. Yes. 3. Why is it that engines for the above purpose are not more extensively used in small shops, as it hardly costs anything to run them? A. We judge from the number of letters that we receive on the subject that they are in extensive use.

Are gunpowder engines in use? A. We do not think that there are any in the market.

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

F. D. L. says: I enclose you a specimen of deposit which is found floating upon the surface of the water and covering the flues of several boilers in this vicinity. It works over into the cylinders of the engines, stopping up the cylinder cocks, and in one instance caused the breaking of the fly wheel, by so closing the cocks that, upon the steam being let on (the water not escaping from the cylinder), the wheel was completely demolished. What is it? A. It consists of silica, silicate of alumina (the basis of clay) and carbonate of lime, along with a little vegetable matter. On heating to whiteness, the latter is burnt off, and the powder becomes quite white. The difficulty lies in the excessive fineness of the particles of the powder, which, under the microscope, look like fine specks and needles, and, when put into water, float upon the surface. They would subside if allowed to stand in a settling reservoir for a very long time, or your water might be run through one of the sponge or other filters now in use.—E. B. S.—It is a lead ore containing 85-5 per cent of lead, the remainder being sulphur, iron, and a trace of silver.—R. G.—This is similar to a great many other pieces recently sent to us, and consists of quartz and decomposed mica. It contains no lead, and is of no pecuniary value.—R. C. H.—It is a very impure coal, containing a large amount of ash. It may be used for fuel in certain cases.—A. B.—It is radiated limonite, which is a brown hydrated sesquioxide of iron. Send the specimens, but not too small ones, in which case satisfactory analysis and determination are often impossible.

Some of our correspondents who send mineral specimens in powder are so careless in doing up the packages that they come to us in a leaky condition, soiling desks and papers, and other articles upon which they are laid. All such packages are thrown into the wastebasket without an examination. In sending specimens of soft or powdery substances, care should be taken to enclose the same so that the packages will not leak.

G. E. K asks: What can I mix with ordinary printer's ink to make it indelible?—P. S. H. says: I have heard that on old Christmas night, January 5, no matter how cold the weather might be, the elder bushes would sprout, and leaves put forth, where previously not a sign of any was visible. I supposed it to be mere tradition; but this year I saw it demonstrated, and saw elder leaves an inch long gathered, there being no sign of any on the previous day. The weather was exceedingly cold, and the leaves were frozen stiff. How is that accounted for?—O. B. asks: Supposing a fly to be on the rim of a locomotive wheel, of 8 feet diameter, through what space would the insect travel while the locomotive travels 50 miles?—F. C. says he wants to make linseed oil varnish, and wants to know what kind of a vessel to use to heat the oil to 600° Fah., how to secure the thermometer bar to conduct a vessel to be filled and emptied, capable of making 25 to 30 gallons at once.

COMMUNICATIONS RECEIVED.

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

- On Meteorological Observations. By J. B. W.
On a Match under the Microscope. By H. A. W
On Railroads on Ice. By C. E. T.
On Experiments with Honey. By J. H. M.
On a Cheap Galvanic Battery. By W. H. S.
On Mill Dams. By J. W.
On the American Institute Fair. By J. W. B.
On Meteorology. By L. W.
On Heating Horse Cars. By B. F. L.
On Amalgam Fillings. By D. W. C.
On Heat as a Mode of Motion. By X.
On Spiritualism. By H. W.
On the late Dr. Sarphat. By M. C.
On a Flying Machine. By D. J.
On Transportation. By I. I. S.
On the Glacial Theory. By D. B.
On a Steamer's Log. By —

Also enquiries and answers from the following: C. H. B.—W. M. H.—R. G. S.—J. K. L.—J. B. R.—N. M. V.—A. J. T.

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 makes automatic fountains who sells ferns, rock work, fish, etc., for aquaria, and who publishes a good book on the subject? Who sells the best churn? Who publishes a book on tanning? Who makes steam, water, and mechanical elevators? Who makes a knife sharpener and glass cutter? Who makes steel or iron rollers for walking canes? Why do not makers of small engines (3x8 inches cylinders, and less) advertise in the SCIENTIFIC AMERICAN?" 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.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week ending January 19, 1875, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

Table listing various inventions with their patent numbers and inventors, such as 'Alarm, concentrating sulphuric, Fauré & Kessler', 'Alarm, electric fire, M. G. Farmer', etc.

Table listing various inventions with their patent numbers and inventors, such as 'Harvester, clover, C. R. Hardy', 'Harvester guards, swaging, J. H. Sieberling', etc.

TRADE MARKS REGISTERED. List of registered trade marks including 'SHIRTS—Markewitz & Price, New York city', 'PERFUME—Miller Bro's, New York city', etc.

SCHEDULE OF PATENT FEES. Table detailing fees for various patent services: 'On each Caveat... \$10', 'On each Trade mark... \$25', etc.

CANADIAN PATENTS. LIST OF PATENTS GRANTED IN CANADA, JANUARY 21 TO JANUARY 25, 1874.

Table listing Canadian patents granted between January 21 and 25, 1874, including 'F. H. Wilson, Chicago, Ill., U. S. Improvements on cans for oils', 'G. W. Bowman, Morrow, Warren county, Ohio', etc.

Advertisements. Back Page - - - - - \$1.00 a line. Inside Page - - - - - 75 cents a line. Engravings may head advertisements at the same rate per line, by measurement, as the letter press. Advertisements must be received at publication office as early as Friday morning to appear in next issue.