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 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 waste basket 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. Sarphati. 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 ferrules for walking canes? Why do not makers of small engines (3x6 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.]

Acid, concentrating sulphuric, Fauré & Kessler	158,924
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Alarm, burglar, A. C. Taylor	158,873
Alarm, electro-magnetic, R. J. Brittain	158,897
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Auger, earth, Davis and Mills	158,919
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Bag holder, U. E. Lemon	158,849
Bale tie, Flinn and Wier	158,836
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Bath, electro-therapeutic, Becker & Hoffman	158,890
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Sifter, coal, J. S. Pearce	158,808
Signal, switch, J. A. T. Bird	158,776
Sled brake, J. York	158,879
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Spark arrester, Summers & Fay	158,870
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Telegraphic apparatus, M. Gally	158,927, 158,928
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Umbrella, U. G. Steinmetz	158,994
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Vegetable slicer, E. Moneuse	158,803
Vehicle axle, J. McCurdy	158,855
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Vehicle seat and body, E. W. Anderson	158,822
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Warming and ventilating, A. B. Mullett	158,965
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Washing machine, J. C. Chase	158,831
Washing machine, M. Commerce	158,788
Washing machine, Niermann *et al.*	158,969
Water closet, E. O. Brinckerhoff	158,896
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Watering tank for hogs, G. A. Carter	158,906
Wells, making artesian and other, C. Pontez	158,965
Wood, embossing, U. A. Lanteigne	158,952

DESIGNS PATENTED.

8,008.—ADVERTISING DESK.—G. E. Carhart, Washington, D.C.

8,009.—COOKING RANGES.—L. W. Harwood, Troy, N.Y.

8,010.—STREET LANTERN, ETC.—R. B. Hewitt, Phila., Pa.

8,011.—INKSTAND BASE.—J. H. Johnson, Newark, N. J.

8,012.—COOK STOVES.—N. S. Vedder *et al.*, Troy, N. Y.

8,013 to 8,017 inclusive.—CENTER PIECES.—S. Kellett, San Francisco, Cal.

8,018.—SODA WATER APPARATUS.—F. H. Shephard *et al.* Lowell, Mass.

TRADE MARKS REGISTERED.

2,171.—SHIRTS.—Markewitz & Price, New York city.
2,172.—PERFUME.—Miller Bro's, New York city.
2,173.—CARPET WARP.—H. E. Vogell, New York city.
2,174 & 2,175.—COFFEES.—Barkley *et al.*, Baltimore, Md.
2,176 to 2,178.—PUMPS.—W. & B. Douglas, Middletown, Ct
2,179.—PERFUMERY, ETC.—Eddy Bro's, New York city.
2,180.—PAINTS.—Hainemann & Steiner, New York city.
2,181.—FIRE KINDLERS, ETC.—J. D. Husbands, Jr., St Louis, Mo.
2,182.—SAUCE.—Lewis & Co., Chicago, Ill.
2,183.—CIGARS.—J. F. Miles, Boston, Mass.
2,184.—PILE CURE.—Montgomery & Co., Philadelphia, Pa.

SCHEDULE OF PATENT FEES.

On each Caveat	$10
On each Trade mark	$25
On filing each application for a Patent (17 years)	$15
On issuing each original Patent	$20
On appeal to Examiners-in-Chief	$10
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On filing a Disclaimer	$10
On an application for Design (3½ years)	$10
On application for Design (7 years)	$15
On application for Design (14 years)	$30

CANADIAN PATENTS.

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

4,282.—F. H. Wilson, Chicago, Ill., U. S. Improvements on cans for oils, called "Wilson's Oil Can." Jan. 21, 1875.

4,283.—G. W. Bowman, Morrow, Warren county, Ohio, U. S. Improvements in dryers, called "Bowman's Champion Dryer." Jan. 21, 1875.

4,284.—J. B. White, Fort Wayne, Allen county, Ind. U. S. Improvements on omnibuses, called "White's Omnibus." Jan. 21, 1875.

4,285.—C. R. Taylor, Ionia, Ionia county, Ind., U. S. Improvements on apparatus for steaming and treating lumber, called "Taylor's Lumber Steamer." Jan. 21, 1875.

4,286.—E. B. Decker, New York city, N. Y., U. S. Improvements in flexible shanks for boots and shoes, called "Decker's Flexible Shanks for Boots and Shoes." Jan. 21, 1875.

4,287.—W. R. King, Chicago, Cook county, Ill., U. S. Improvements on baling plastering hair, called "King's Improvement in Baling Plastering Hair." Jan. 21, 1875.

4,288.—Wm. Ascough, Buffalo, Erie county, N. Y., U. S. Improvements on a combined bevel square, try square, protector, level, slope level, and compasses, called "Ascough's Combination Square." Jan. 21, 1875.

4,289.—Wm. Inglis, Bolton, Lancaster county, England. Improvement on floating vessels for storing grain, called "Improved Grain Storage Boat." Jan. 21, 1875.

4,290.—H. Ryder, Somerville, Mass., U. S. Improvements on grates for furnaces, called "The Ryder Grate." Jan. 21, 1875.

4,291.—F. Rhind, Brooklyn, N. Y., U. S. Improvements in lamps, called "Rhind's Safety Lamp." Jan. 21, 1875.

4,292.—R. C. Brooks and A. J. Van Winkle, San Francisco, San Francisco county, Cal., U. S. Improvements on a process and apparatus from distilling alcohol extract from wort so that said alcoholic extract shall be free from fusel oil, called "Brooks' Improved Distilling Apparatus." Jan. 22, 1875.

4,293.—J. K. Feick, Berlin, Waterloo county, Ont. Improvements on lasts for making seamless boots, called "Feick's Improved Last for Making Seamless Boots, etc." Jan. 23. 1875.

4,294.—W. S. Wisner, Brantford, Brant county, Ont., assignee of C. P. Brown, Manchester, Ontario county, N. Y., U. S. Improvements on seed sowing machine, called "Valve for Grain Drill Double Distributer." Jan. 23, 1875

4,295.—C. C. Moore, Elizabeth, Union county, N. J., U. S. Improvements in pencil holders for slate frames, called "Moore's Pencil Holder for Slate Frames." Jan. 23, 1875.

4,296.—J. O. Peacock, Finsbury Park Row, Middlesex county, Eng. Improved form of stove and apparatus connected therewith, called "Peacock's Diathermic Gas and Fuel stove." Jan. 23, 1875.

4,297.—D. D. Cattanach, Providence, Providence county, R. I., U. S. Improvements on treating oil for paints, called "Cattanach's Oil Process." Jan. 23, 1875.

4,298.—M. Hutchinson, Norfolk, St. Lawrence, N. Y., U. S. Improvements on heating drums, called "M. Hutchinson's Heating Drum." Jan. 23, 1875.

4,299.—T. A. Edison, Newark, Essex county, N. J., U. S. Improvements in electric telegraphs, called "Edison's Domestic Telegraph." Jan. 23, 1875.

4,300.—T. and J. C. Peacock, Finsbury Park Row, Middlesex county, Eng. Improvements in gas cooking apparatus, called "Peacock's Thermostatic Gas Roaster." Jan. 23, 1875.

4,301.—Wm. A. Lamb, Orleans, Ontario county, N. Y., U. S. Improvements on wagon seats, called "Lamb's Seat Fastener." Jan. 23, 1875.

4,302.—M. Goldman, Syracuse, N. Y., U. S. Improvement on a pocket candlestick, called "Goldman's Attachable Candlestick." Jan. 23, 1875.

4,303.—J. W. Morgenmeier, Sheboygan, Sheboygan county, Wis., U. S. Improvements in varnishes for coating photographs, negatives, and glasses, called "Morgenmeier's Ground Surface Negative Retouching Varnish." Jan. 23. 1875.

4,304.—G. Ramsdell, Detroit, Wayne county, Mich. Improvement in the process of making wood gas, called "Ramsdell's Wood Gas Generator." Jan. 23, 1875.

4,305.—J. J. Higgins, New York city, N. Y., U. S. 1st extension of No. 4,151, on "Higgins' Automatic Umbrella Runner." Jan. 23, 1872.

4,306.—J. J. Higgins, New York city, N. Y., U. S. 2d extension of No. 4,151, on "Higgins' Automatic Umbrella Runner." Jan. 25, 1875.