W. H. H. says: We have a steam engine rated at 15 horse power, and a muley saw. With 150 lbs. steam, we cannot run through a 30 inch log, the saw making 200 revolutions per minute. I would like to increase the heating surface. At present we have only got an inch and a quarter pipe running through a heater 20 inches long. Suppose I turn the exhaust through the tank, will it deduct anything from the power of the engine? A. It will increase the back pressure slightly. We do not answer questions of the character of your other queries for obvious reasons.

J. W. C. asks: How can I make bronze and blue writing inks? A. For blue, use 2 ozs. Chinese blue, boiling water 1 quart, acetic acid 1 oz. Dissolve the blue in the water, add the acid, and it is ready for use. For bronze, use the common blue ink of the shops in a steel pen; it will turn bronze by the action of the metal.

J. H. P. says: It is generally believed that a railroad bridge is less liable to give way when the passing train moves slowly than when under full speed. Is this correct? Boys sliding or skating over thin ice rightly judge their safety to depend in a great measure upon the celerity of their movement. Grant that a bridge has one weak place, one place weaker than any other of the same bridge; and that a train has one car or combination of cars heavier than any other car or combination of cars of the same train; and further that there is one point (center of gravity) in that heavy car or combination of cars where the strain or gravity is greater than at any other point. Now, as it is the last straw that breaks the camel's back, so by parity of reasoning it is that point of greatest strain or gravity that causes the bridge to give way at the weakest place. Again, grant that a bridge never falls to pieces all at once, but that in the order of time one part—pin, brace, or beam—breaks first, then another part, then another, till the final smash, each break occupying, succeeding, and being succeeded by an appreciable moment of time; and further, the more rapidly the train moves, the more evenly the greatest strain will be distributed over the bridge and the less time it will have to act upon the weak point; and it follows, other considerations being out of the question: That the more rapidly the train passes over the bridge, the less liable will be the bridge to fall. Is this correct? A. This theory would be correct, if a train passed over the track as a boy glides over the ice on skates. But the train, on account of inequalities in the track and uneven speed, is continually striking blows as it moves along; and the faster moves, the more rapid and violent are the blows.

C. T. D. asks: How is the crystalline appearance of galvanized sheet iron produced? A. We believe that it is produced by the crystallization which takes place in the cooling of the zinc surface on withdrawing the iron plate from the bath of molten metal.

J. K. R. asks: At what temperature will plumbago fuse, or what degree of heat will it sustain without fusing? A. It will not fuse at, and should sustain, the highest heat of a wind furnace.

W. C. K. asks: How can I prepare common cotton sheeting, so that it will be sufficiently close to use for a sail? Without some preparation it will not hold the wind. A. Try a thin solution of india rubber in bisulphide of carbon.

A. E. G. asks: Will you give me a test for the presence of alcohol in solutions? A. Pure alcohol must completely volatilize, and ought not to leave the least smell of fusel oil when rubbed between the hands nor should it redden litmus paper. When kindled, it must burn with a faint bluish, scarcely perceptible flame.

G. O. S. says: I am building a small pleasure steamer to draw 2 feet of water. What tunnage will she carry? Her length is 47 feet, beam 4 feet, with flat bottom? A. Calculate the displacement, in cubic feet, for any draft, and divide by the number of cubic feet in a tun of water.

C. H. asks: 1. What will rust iron the most and in the least time? A. A solution of sal ammoniac will answer. 2. What is the wax which the barbers use for blacking the moustache composed of? A. It generally contains a solution of nitrate of silver.

J. W. M. asks: I. What is the rule for placing boiler rivets, and for the size of rivets to get the greatest strength in different thicknesses of iron? A. It is usual, in single riveted joints, to make the diameter of the rivets from twice to once and a half the thickness of the plate. The distance between the centers of rivet holes may be found by adding the diameter of the rivet to 0·7854 times the quotient of the square of the diameter of the rivet divided by the thickness of the plate. 2. If we use a common horse power, run a lever 50 feet from center, and lay a 3 feet endless railroad 100 feet diameter, would it do for such heavy work as a 3 run flour mill? We should use a small locomotive for power. Would it be economical or not? A. We do not see anything of special merit in the plan. 3. What is the size of the largest locomotive driving wheels, and on what railroad are they used? A. The largest of which we have seen an account are on some locomotives in the Great Western Railway in England. They are 8 feet in diameter.

T. C. S.—The solution on p. 300, vol. 29, seems to be correct. The relation between the power and weight was required for a definite position of the machine; and though this relation is continually varying, it can be found, for any particular point very reliably. You will find the subject treated in any good work on mechanics, showing how to deduce general formulæ, by which the relation between the power and weight at any point can be determined.

T. F. asks: 1. What work on logarithms explains them in the plainest way, without regard to cost? A. We can recommend Law's "Treatise on Logarithms," published in Weale's series. 2. Is there any work in which the shafting and pulleys for quarter twist belts are illustrated? A. You will find this illustrated in nearly any book on mill work. 3. Which French scientific periodical is most like the SCIENTIFIC AMERICAN? A. The *Revue Industrielle*. 4. Is there any one devoted to the flour milling interests? A. We think not.

C. A. asks: 1. What is the best speed for a foot power circular saw, as proved by practice, the saw being 5 inches in diameter? A. As fast as possible. 2. Would it not require too much power to run the saw at 9,000 feet per minute, to saw one inch stuff? A. Yes. 3. Can you furnish the *Science Record* for the years 1873 and 1874? A. Yes.

B. H. asks: What is the greatest speed that has been attained by a locomotive? A. The fastest time that we know of from personal observation is 63 miles an hour. We have seen statements, on apparently good authority, that a speed of 90 miles an hour is often attained on many railroads in this country.

W. H. B. asks: 1. What is meant by the term sea level, and how can I determine the sea level of any city? A. The sea level is the hight of the ocean, at mean low tide, in reference to any place whose elevation is to be determined. 2. What is the meaning and derivation of the term O. K.? A. We have been told that it originated from the endorsement put upon a package by a distinguished but illiterate personage. Being asked what he meant by "O. K.," he took a piece of chalk and wrote down "Orl Korrect."

H. T. G. asks: Can air be so confined as to be used as a power? For instance, could it be applied to running a locomotive, provided a constant supply could be obtained? Has there ever been an air engine in operation? A. Air compressing machines, and the use of compressed air for motors, are quite common. You can get full particulars from the manufacturers.

S. asks: Can the best turbine water wheel, geared to the best pump made, raise the quantity of water used by the wheel to ⅓ the hight of the fall? A. According to some of the best results given in tests of turbine wheels and pumps, the quantity of water raised would be 0·55 the hight of the fall with a centrifugal pump, and 0·45 with a direct acting pump.

M. A. V. asks: How much water ought to be evaporated into steam of 60 lbs. per square inch pressure, by 1 lb. of coke, using cold water to feed the boiler? A. About 7½ lbs., if the boiler is well designed.

J. H. asks: 1. Does the power of the ram increase as the square of the fall increases? A. No. 2. Is the power the result of the impetus acquired by the discharge? A. Yes. 3. Would it be practicable to work a ram under a head of twenty feet? A. Yes.

C. S. A. asks: 1. If a pipe is forty feet high and filled with water, what will be the pressure to the square inch on the base? What is the rule for telling the pressure of water on the base, the tube being of a specified hight? A. Multiply the hight in feet by 0 433. In the example given, the pressure per square inch on the base is 40×0·433=17·32 pounds. 2. When the steam gage registers 60 lbs., does that mean that there is 60 lbs. pressure to the square inch of surface of the boiler? A. Yes. 3. How many gallons of water does an ordinary locomotive carry in its tender? A. From 1,500 to 2,000. 4. How is the expansion and contraction provided for in the bridge at St. Louis? Will wire rope work over six inch pulleys subjected to heavy pressure stand the pressure and wear as well as the ordinary cable? A. See answers to C. B. A., p. 34, vol. 30.

A. M. Y. asks: Can you recommend me any works on armored vessels? A. It will be necessary for you to look over periodical literature. You will find some matter of considerable value in "Our Iron-Clad Ships," by E. J. Reed.

M. asks: 1. Is there any difference between one square foot and one foot square? A. No. 2. Is it correct to say that one square foot is equal to four feet square? A. No. 3. A contends that one foot square and one square foot are equal, and that four feet square contains sixteen square feet. A. The statement is correct.

R. asks: How can I get at the exact latitude of a place in the vicinity of Lake Connecticut, N. H.? A. It is most readily calculated from observations of the meridian altitude of the sun or a star. It can be ascertained, with sufficient accuracy for many purposes, by the inspection of a good map.

C. V. H. asks: 1. Will nickel coating disturb the temper of steel wire? A. No. 2. Will coiling the wire for springs injure the nickel coating? A. Yes. 3. What is the expense of nickeling steel wire compared to the market value of the same? A. From 25 to 100 per cent, according to size and quality.

J. H. W. asks: What is the nature and amount of friction on a ship propelled through the water by steam or wind? A. You will find the subject treated in Bourne's "Handbook of the Steam Engine." Its discussion would occupy too much space for insertion in these columns.

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

T. J. M.—No salts of any kind, nor any sizing, have been used in the manufacture of this article. It appears to owe its character to the way in which vegetable fibers like hemp have been worked together.

H. H. H.—Your specimens are iron pyrites found in coal; one of them is pyrites submitted to heat, and sand from drilling.

J. F.—It would be necessary to have some of the black substance from the needle gun cartridge in order to pronounce what it is.

W. S. B.—It is limonite, and contains about 80 percent of oxide of iron.

W. J. C.—The samples sent appear like good specimens of lithographic stone; but in order to determine its value, practically, a specimen about 12 inches long x 6 inches wide is necessary.

T. B. G.—The mineral sent is mica slate, composed essentially of mica and quartz. The folia of mica are sometimes so small that they are hardly discernible by the eye, as in this specimen. It can sometimes be split into tabular masses and employed for many common purposes. It is very difficult to fuse, and has been used in constructing the hearths and sides of furnaces for melting iron, etc.

P. J. K.—An analysis of the powder revealed the presence of oxide of iron, silica, clay, carbonate of lime, chloride of potassium, chloride of sodium, and some organic matters. But it is not possible to tell with certainty, from such residues, whether or not the drinking water is injurious. The water itself must be analyzed. We should, however, in this case suspect some contamination. The mode of remedying it could only be indicated after the completer examination spoken of above.

S. H.—Yellow calcite or carbonate of lime, of no particular value.

C. H. F.—Galena, sulphide of ead.

N. W. W.—Lenticular argillaceous oxide of iron. In this species, the oxide of iron is united by mixture or combination with clay. It ordinarily melts with ease, affording from 30 to 50 per cent of iron.

A. S. T.—Your specimen is neither isinglass nor silica. It is gypsum, and, by burning, will yield excellent plaster of Paris.

R. W. F.—The shining particles in the black rock are iron pyrites, and are of no value.

J. A. D.—1. Impure limestone. 2. Sulphide of zinc, containing 67 per cent zinc.

J. N. S.—Iron pyrites, of no value at present.

G. W. H.—Your specimens of ore contain iron. If you wish an analysis, it will cost $10.

R. H. W.—The blue mineral in the rock is silicate of copper, and contains about 45 per cent of oxide of copper. The yellow is sulphide of copper, containing about 35 per cent of copper.

W. C. C. & Co.—The material sent seems to be of the nature of Portland cement. An analysis will cost $10.

T. C. H.—The shining metallic looking substance is iron pyrites.

S. E. G. C.—These specimens consist of indurated clay or shale, and the action on the piece of iron shown was due to the free silica forming a slag with the oxide of iron and leaving a clean metallic surface.

R. W. F.—This is galena; but to determine the amount of silver in it, if any, will require an analysis, costing $10.

F. A. B.—This specimen is hornblende, a compound of silica, alumina, lime, magnesia, oxide of iron, and sometimes manganese.

J. E. S.—In order to determine the value of lithographic stone, we require a sample about 12 inches long, 6 inches wide and 2 inches thick. Your specimens look promising. Send us, if possible, a sample of the size mentioned. Lithographic stone is a fine grained limestone; and when of good quality is of a yellowish gray color and uniform throughout. It is free from veins, fibers, and spots; a steel point makes an impression on it with difficulty, and the splinters broken off by a hammer show a conchoidal fracture.

H. L. C. asks: How can I paint tin so as to give it a fine glossy appearance? Can japanning be done without heat?—D. L. B. asks: How is wine made from cultivated grapes?—G. M. S. asks: What kind of paint will adhere best to articles of brass or copper? I want a bright vermillion color, and it is to be exposed to water.—W. V. asks for a recipe for plating gold without a battery.—J. F. J. G. asks: What substance is there which, combined with glycerin, will render leather perfectly waterproof?—V. E. Jr. asks: How many pianofortes are annually manufactured in the United States?—B. W. C. asks: How can I remove green beech and cherry stumps in the most speedy and effectual manner without digging them up? I have heard that oil of vitriol placed in them will rot them out in a short time. Will it do it? If so, how much should be used?—W. C. L. asks: Can any one give me a rule for setting iron axles?—J. H. P. asks for a cure for gapes in chickens. The disease generally makes its appearance about two or three weeks after the chickens are hatched, and continues for from four to six weeks. It is supposed that the parent insect lays its eggs upon the nostrils of the chick, which soon hatch into worms and crawl down into the *trachea*, make their way again into the open air and burrow in the earth to undergo transformation.

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 Use of Both Hands. By J. D. B.
On the Torpedo. By ——.
On Kepler's Third Law. By G. E. W.
On Cotton Planting. By W. D. H.
On Light Steam Rams. By S. S.
On Two Problems. By G. W. E.
On the Attraction of the Sun and Earth. By D. E. G.
On a New System of Telegraphy. By E. E. W. B.
On Nerve Force. By I. R.
On the Pons Asinorum. By F. S.
On the Detroit Tunnel. By A. H.
On the Transfusion of Blood. By X. Y. Z.

Also enquiries and answers from the following:

O. G.—R. S.—F. McC.—I. M. W.—E. S.—E. N. K.—D. P. W.

Correspondents in different parts of the country ask: Who makes small oscillating steam engines for running sewing machines? Who makes machinery for making paper pulp from wood? Who sells revolving bolts for dressing middlings? Who builds lime kilns of the most approved pattern? Who makes a hub boring and mortise machine, to go by hand power? Who sells the best clothes mangle? Who deals in old coins? Makers of the above articles will probably promote their interests by advertising, in reply, in the SCIENTIFIC AMERICAN.

Several correspondents request us to publish replies to their enquiries about the patentability of their inventions, etc. Such enquiries will only be answered by letter, and the parties should give their addresses.

Correspondents who write to ask the address of certain manufacturers, or where specified articles are to be had, also those having goods for sale, or who want to find partners, should send with their communications an amount sufficient to cover the cost of publication under the head of "Business and Personal," which is specially devoted to such enquiries.

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patent of the United States

WERE GRANTED IN THE WEEK ENDING

March 17, 1874,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

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Spike extractor, E. Buell	148,664
Spinning bolster, G. Richardson	148,625
Staples, making, B. H. Brooks	148,547
Steam condenser, T. L. Jones	148,561
Steam, superheater, G. W. Coffee	148,598
Steel, annealing, etc., J. A. Bidwell	148,590
Stock feeder, L. P. Cox	148,672
Stone, artificial, G. Steinemann	148,772
Stove, heating, W. Chelius	148,668
Stove, heating, W. H. Teeling	148,779
Straps, etc., trimming, J. Lott	148,617
Suspenders, J. W. Wattles	148,635
Swine, device for ringing, E. Blair	148,611
Table, folding, G. W. Horton	148,598
Tank for hot water apparatus, C. H. Buck	148,768
Telegraph, printing, J. E. Smith	148,686
Time piece, alarm, H. J. Wenzel	148,760
Tin from scrap, separating, P. D. Rickets	148,594
Tobacco cutter, G. W. Campbell	148,737
Tobacco dryer, J. C. Milliner	148,687
Tool holder, F. Funk	148,616
Trap, stench, F. B. Lawrence	148,718
Truss, A. Lethert	148,600
Tripod base, J. W. Donn	148,717
Tube welding machine, J. R. Lemen	148,624
Type, space for, B. B. Ray	148,573
Umbrella case, S. M. Moschcowitz	148,768
Valve, variable exhaust, D. H. Seamon	148,762
Vault and cell, iron, W. B. Scaife	148,740
Vegetable slicer, H. E. Nittinger	148,745
Vehicle wheel, B. and H. W. Pearson	148,746
Vehicles, dash board for, W. C. Peel	148,769
Vehicles, fender for, A. Sperry	148,681
Vehicles, spring equalizer for, S. Elliott	148,764
Vehicles, top prop block for, F. M. Shepard	148,780
Vessel propelled by steam, A. Thomson	148,726
Vessels, center board for, J. Mansir	148,715
Vessels, apparatus for raising sunken, H. F. Knapp	148,714
Vessels, etc., means for raising sunken, H. F. Knapp	148,581
Washer and wringer, combined, J. H. Swan	148,789
Washing machine, J. Q. Whartnaby	148,703
Washing woolen fabrics, A. S. Hopkins	148,735
Watchmrker's tray, L. P. Milliken	148,577
Water wheels, gate for turbine, Risdon *et al.*	148,583
Weather strip, S. D. Tuttle	148,676
Wind wheel, J. N. Deitz	148,559
Window screen, J. Hancock, Jr	148,630
Wood, apparatus for preserving, J. C. Stead	148,752
Wood for bending, process of treating, L. Pine	148,629
Wrench, bung bush, J. B. Smith	

APPLICATIONS FOR EXTENSION.

Applications have been duly filed and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned:

28,726.—PITCHER SPOUT AND LID.—D. Baker. June 3.
28,756.—PORTFOLIO PAPER FILE.—J. N. Jacobs. June 3.
28,928.—NAIL CUTTER.—W. Wickersheim. June 10.

EXTENSIONS GRANTED.

27,545.—FITTING SINKS.—J. Ingram.
27,594.—SEWING MACHINE.—L. W. Langdon.

DISCLAIMER.

27,594.—SEWING MACHINE.—L. W. Langdon.

DESIGNS PATENTED.

7,243.—SUSPENDER ENDS.—T. J. Flagg, New York city.
7,244.—SHUTTER HOOK.—O. F. Fogelstrand, Kensington Conn.
7,245.—DOOR HINGE.—E. J. Steel, New Haven, Conn.
7,246 and 7,247.—PAPER FILES.—O. F. Fogelstrand, Kensington, Conn.
7,248.—PAPER WEIGHT.—O. F. Fogelstrand, Kensington Conn.
7,249.—TYPE.—W. H. Page, Norwich, Conn.
7,250.—SPOON AND FORK HANDLES.—G. Wilkinson, Providence, R. I.

TRADE MARKS REGISTERED.

1,670.—PAINTS.—Enamel Paint Co., Crescent, N. Y.
1,671.—COUGH LOZENGES.—C. L. Gunn, New York city.
1,672.—DISINFECTANT.—J. A. Heckelmann, St. Louis, Mo.
1,673.—AXES.—Hubbard & Co., Pittsburgh, Pa.
1,674.—STOMACH BITTERS.—E. C. Jürgensen, Portland, Or.
1,675.—WHISKY.—G. W. Kidd & Co., New York city.
1,676.—CASTINGS.—Arcade Malleable Iron Co., Worcester, Mass.
1,677.—MOTH POWDER.—Hall *et al.*, New York city.
1,678.—TEERA ALBA.—J. Pettit & Co., New York city.
1,679.—GAMES.—E. G. Selchow, New York city.
1,680.—CANNED GOODS.—Sleeper *et al.*, Burlington, N. J.
1,681.—ESSENTIAL OILS.—Young *et al.*, New York city.

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 application for Extension of Patent	$50
On granting the Extension	$50
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, MARCH 8 to MARCH 23, 1874.

3,206.—I. C. Wands, Nashville, Davidson county, Tenn Improvements on car roofs, called "Wand's Car Roof." March 18, 1874.

3,207.—I. Y. Smith, Pittsburgh, Alleghany county, Penn. Improvements on carbrakes, called "Smith's Vacuum Car Brake." March 18, 1874.

3,208.—G. S. Tiffany, London, Middlesex county, Ont. Improvements in a machine for making brick, called "Tiffany's Brick Machine." March 18, 1874.

3,209.—I. W. Post, New York city, U. S. Improvements in carburetting apparatus or lamp, called "Post's Carburetting Lamp." March 18, 1874.

3,210.—William Bryan, Whitby, Ontario county, Ont., assignee of A. Rusland, same place. Improvement in making eave troughs, called "Rusland's Improved Eave Trough Former." March 18, 1874.

3,211.—I. N. Smith, Jersey City, Hudson county, N. J., U. S. Improvements on journal boxes for railway carriages, called "Smith's Rail Car Journal Box." March 18, 1874.

3,212.—W. H. Boyd, Montreal, P. Q. Improvements on creepers, called "Boyd's Improved Creeper." March 18, 1874.

3,213.—I. J. Fitzpatrick, Philadelphia, Philadelphia county, Penn. Improvements in drawers, called "Fitzpatrick's Improved Drawers for Gentlemen and Boys." March 18, 1874.

3,214.—M. Harmon and E. A. Watson, Shilby, Orleans county, N. Y. Improvements on middlings separators called "Harmon & Watson's Middlings Separator." March 18, 1874.

3,215.—I. P. Magoon, St. Johnsbury, Caledonia county, Vt., and C. A. Shaw, Boston, Suffolk county, Mass., U. S. Improvements on the means for preventing cinders from entering the exhaust pipes of locomotive steam engines, called "Magoon's Improved Exhaust Pipe." March 18, 1874.

3,216.—R. Bustin, St. John's, N. B. New and useful fire escape, called "Bustin's Improved Portable Fire Escape." March 18, 1874.

3,217.—H. Gaskell, Hamilton, Wentworth county, Ont. Improvements in fire boxes and coal grates for stoves and furnaces, called "Gaskell's Combined Coal Grate and Fire Box." March 18, 1874.

3,218.—F. Genin, E. Beauvais, I. E. Robidoux, I. A. Perkins, and R. Préfontaine, all of Montreal, P. Q. Improvements on paper machinery and chemical compounds used in treating substances to be converted into paper stock, called "Genin's Pulp Machine." March 18, 1874.

3,219.—D. Aikman, Montreal, P. Q. Improvements on machinery for manufacturing peat fuel, called "Aikman's Improved Peat Machinery." March 18, 1874.

3,220.—W. Petch, Brantford, Brant county, Ont. Improvements on a machine for bolting and purifying flour and middlings, called "Petch's Improved Bolting Reel and Purifier." March 18, 1874.

3,221.—J. C. Wilson, Montreal, P. Q. Improvements on paper bag cutters, called "Wilson's Paper Bag Cutter." March 18, 1874.

3,222.—R. Paradis, St. Hyacinthe, District St. Hyacinthe, P. Q. Améliorations aux brunissoirs de cordonnerie pour les lisses de semelles. "Brunissoir pour Lisses de Semelles." (Improvements on burnishers for the Soles of Boots and Shoes.) March 18, 1874.

3,223.—N. A. Otto, Gamostoren Fabrik-Deutz, at Deutz, German Empire. Improvements on caloric engines, called "Otto's Improved Caloric Engine." March 18, 1874.

3,224.—U. L. Webster, New Haven, New Haven county, Conn., U. S. Improvements on adjustable patterns for cutting garments called "Webster's Adjustable Patterns." March 18, 1874.

3,225.—J. H. Beardsley, Brooklyn, N. Y., as signee of G. A. Crofutt, New York city, U. S. Improvements on apparatus for protecting the eyes and respiratory organs of persons exposed to extreme heat, smoke, noxious gases, dust, etc, called "Crofutt's Eye and Lung Protector." March 19, 1874.

3,226.—F. Dodge, Whiteside county, Ill., U. S. Improvements in the manufacture and preparation of crude peat for fuel, called "Dodge's Improved Peat Machine." March 20, 1874.

3,227.—L. Ruthven, Lévis, Lévis county, P. Q. Improvements on gas machines, called "Ruthven's Gas Machine." March 23, 1874.