

## Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Brass Plating on Zinc without battery. Instructions for sale by W. Key & Co. 183 Allen St., N. Y. City.

Steam Engines—25 per cent extra power or saving in fuel, guaranteed, by applying the R. S. Condenser. T. Sault, Consult'g Eng'r, Gen. Agt., New Haven, Ct.

Go where you will! Anywhere in the United States, you will see the results of advertising through Messrs. Geo. P. Rowell & Co's Advertising Agency, No. 41 Park Row, New York. The name of the firm is in every town and city. Through this advertising house you can reach every person in the Union. They are the best organized house, and the finest men to deal with.—[Clarion, Hartford, Conn.]

Wanted—Some one to take an interest in, and manufacture one of the best Sewing Machines ever offered to the public. Address, with reference, Desideratum, Station A, New York City.

To Manufacturers of Small Novelties—Send your address to J. Knight, Box 154, Denver, Col.

Traction Engines, good order, for Sale cheap—International Chemical Works, 10th St., Hunter's Point, N.Y.

Speed Indicator, \$2.00; Drill Gauge, 1 to 60, \$1.00. By mail. Samuel Harris & Co., 45 Desplaines St., Chicago.

Patent for Sale—Balancing Acrobat. A new Toy. It performs all kinds of motions. T. C. Leypoldt, 243 North 5th St., Philadelphia, Pa.

A Moulder, experienced in all branches, wishes a situation to work or take charge. First class references. Address G., 95 8th Avenue, New York.

New Money Making Business—Now is the best season. Canvassing Salesmen wanted. Address P. O. Box 564, New York.

Double-Entry Book-Keeping Simplified. The most successful Book on the subject ever published. Cloth, \$1. Boards, 75 cts. Sent post paid. Catalogue free. D. B. Waggener & Co., 424 Walnut St., Philadelphia, Pa.

Caution—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 & 38 Park Row, New York.

The London M<sup>g</sup> Co.'s Varnishes are rapidly taking the place of all others in the market. They make a better finish, are more durable and more satisfactory in every respect than even the best imported.

Bolt Headers, both power and foot, and Power Hammers, a specialty. S. C. Forsyth & Co., Manchester, N. H.

Main Driving Belts—Pat'd improvement. Address for circular, Alexander Bro's, 412 N. 3d, Philadelphia, Pa.

Amateurs and Artizans, see advertisement, page 221. Fleetwood Scroll Saw, Trump Bro's, Manufacturers, Wilmington, Del.

Electric Burglar Alarms and Private House Annunciators; Call, Servants' & Stable Bells; Cheap Telegraphs; Batteries of all kinds. G. W. Stockly, Cleveland, O.

For Sale, cheap—One 60 H.P. Boiler, 40 Engines and Boilers. Address Junius Harris, Titusville, Pa.

Steam and Water Gauge and Gauge Cocks Combined, requiring only two holes in the Boiler, used by all boiler makers who have seen it, \$15. Hillard & Holland, 62 Gold St., New York.

Hotchkiss Air Spring Forge Hammer, best in the market. Prices low. D. Frisbie & Co., New Haven, Ct.

Wanted—The best Machine for pointing Horse Shoe Nails. William Morehouse, Buffalo, N. Y.

Saw Teeth Indicator—Showing improved form for filing teeth on Saws for use in different kinds of wood, &c. Sent free for 50c. E. Roth, New Oxford, Pa.

For reduced prices of Surface Planers and Mitre Dovetailer's Machines, send to A. Davis, Lowell, Mass.

"Pantecut," or Universal Worker—Best combination of Lathe, Drill, Circular, and Scroll Saw. E. O. Chase, 7 Alling Street, Newark, N. J.

Scale in Boilers Removed—No pay till the work is done. Send for pamphlet. Geo. W. Lord, Phila., Pa.

To Manufacturers—Pure Lubricating Oil, Sample Package (24 gals.), \$7. Send to Geo. Allen, Franklin, Pa.

Educational Lantern Slides—Send for Catalogue to Prof. W. A. Anthony, Cornell University, Ithaca, N. Y.

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

For Sale—Second Hand Wood Working Machinery. D. J. Lattimore, 31st & Chestnut St., Phila., Pa.

Price only \$3.50.—The Tom Thumb Electric Telegraph. A compact working Telegraph Apparatus, for sending messages, making magnets, the electric light, giving alarms, and various other purposes. Can be put in operation by any lad. Includes battery, key, and wires. Neatly packed and sent to all parts of the world on receipt of price. F. C. Beach & Co., 246 Canal St., New York.

Small Tools and Gear Wheels for Models. List rec. Goodnow & Wightman, 23 Cornhill, Boston, Mass.

Peck's Patent Drop Press. Still the best in use. Address Milo Peck, New Haven, Conn.

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

All Fruit-can Tools, Ferracute Wks, Bridgeton, N.J.

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

Temples and Oilcans. Draper, Hopedale, Mass.

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

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.

Magic Lanterns and Stereopticons of all sizes and prices. Views illustrating every subject for Parlor Amusement and Public Exhibitions. Pays well on small investments, 72 Page Catalogue free. McAllister, 49 Nassau St., New York.

Water, Gas, and Steam Goods—New Catalogue packed with first order of goods, or mailed on receipt of eight stamps. Bailey, Farrell & Co., Pittsburgh, Pa.

The "Scientific American" Office, New York, is fitted with the Miniature Electric Telegraph. By touching little buttons on the desks of the managers, signals are sent to persons in the various departments of the establishment. Cheap and effective. Splendid for shops, offices, dwellings. Works for any distance. Price \$6, with good Battery. F. C. Beach & Co., 246 Canal St., New York, Makers. Send for free illustrated Catalogue.

For best Bolt Cutter, at greatly reduced prices, address H. B. Brown & Co., New Haven Conn.

The Baxter Engine—A 48 Page Pamphlet, containing detail drawings of all parts and full particulars, now ready, and will be mailed gratis. W. D. Russell, Park Place, New York.

Brass Gear Wheels, for Models, &c., on hand and made to order, by D. Gilbert & Son, 212 Chester St., Philadelphia, Pa. (List free.) Light manufacturing solicited.

American Metaline Co., 61 Warren St., N.Y. City.

Genuine Concord Axes—Brown, Fisherville, N.H.

Faught's Patent Round Braided Belting—The Best thing out—Manufactured only by C. W. Army, 148 North 3d St., Philadelphia, Pa. Send for Circular.

For 13, 15, 16 and 18 inch Swing Engine Lathes, address Star Tool Co., Providence, R. I.

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



M. W. K. will find directions for preparing oxygen gas on p. 299, vol. 33.—C. E. K. Jr. can produce satin finish on gold or silver ware by the use of the sand blast. Nickel plating is described on p. 171, vol. 30.—J. P. A. can make pasteboard fire-proof by the process given on p. 171, vol. 33.—G. G. can mold rubber by the process described on p. 283, vol. 29.—F. G. W. will find a description of tests for impurities in water on p. 155, vol. 33.—W. J. S. will find that the proportions of safety valves are described on p. 330, vol. 32.—C. W. L. can cement pieces of iron together by using the preparation described on p. 251, vol. 28.—L. L. L. can gild picture frames by the method detailed on p. 90, vol. 30.—E. should French polish his walnut panels; see p. 11, vol. 32.—J. M. A. will find directions for silvering mirrors on p. 234, vol. 30.—G. H. O. can solder brass to copper by the process described on p. 251, vol. 28.—H. J. E. will find a recipe for pickle for castings on p. 139, vol. 31.—H. E. S. will find a recipe for black ink on p. 203, vol. 29.—A. V. can purify rancid butter by following the directions on p. 119, vol. 30.—J. L. will find directions for making hard soap on pp. 331, 379, vol. 31.—W. H. M. will find a recipe for blackboard composition on p. 91, vol. 30.—O. C. T. will find directions for staining wood in imitation of black walnut on p. 90, vol. 32.—W. H. J. will find directions for proportioning screw-cutting gears on p. 187, vol. 29.—E. B. W. can dissolve india rubber by following the directions on p. 283, vol. 29.—J. H. O. K. will find a recipe for browning gun barrels on p. 11, vol. 32.—G. A. McL. should decline to listen to superstitious nonsense as to the influence of the moon's phases.—W. P. should read the SCIENTIFIC AMERICAN, and he would not then waste his time on the circle-squaring problem.—W. H. McC. can protect polished steel from rust by the method described on p. 283, vol. 31.—J. D. F. will find a recipe for a cement for china and glass on p. 346, vol. 24.—F. W. S. can make a paper canoe by following the directions on p. 163, vol. 27.—J. S. W. can test his safety valve by the process described on p. 273, vol. 31.—E. H. B. will find directions for bronzing iron castings on p. 283, vol. 31.—H. H. D. will find a description of the stereotype process on p. 363, vol. 30.—C. E. will find a recipe for hair stimulant on pp. 267, 363, vol. 31.—W. H. M. and C. P. N. can cement glass to brass by the process given on p. 298, vol. 30.—J. H. D. and S. F. B. will find a recipe for liquid bronze on p. 130, vol. 32.

(1) C. C. says: I am making a boiler of tin, 15 inches long and 5 inches in diameter. What pressure will it stand per inch? A. The safe pressure is about 25 lbs. per square inch.

(2) A. A. H. says: I have a spring of water which I have brought to a barn through ¾ inch lead pipe. I wish to let the trough fill to within 3 inches of the top, and then to carry the water down a fall of 5 feet. Last winter I had trouble with air filling in the pipe running from the trough to the yard. How can I arrange it so as to have no trouble with the air or the frost? A. To prevent the accumulation of air, lay the pipe with a continuous fall, free from abrupt bends; and cover it well to prevent freezing.

(3) J. B. P. says: I have a hand and foot sawing machine in which the power is taken from balance wheel to saw arbor by means of gear. I wish to get more speed, and propose using a 36 inch balance wheel and a 3 inch pulley on saw arbor to be driven by friction. Is it practicable to drive a 3 inch pulley by a 36 inch one? A. It will probably be best to use a V-shaped gearing, of cast iron.

(4) W. E. W. asks: A substance accumulates in my boiler. It mainly floats on the top of the water, causing inconvenience at the gage cocks. The water used is from an artesian well 118 feet deep. But little sediment or scale is formed. After blowing off and cleaning out the boiler, I have lately been using tallow, putting a few pounds into the boiler; and until I did so this substance never was troublesome. Lately it comes over with the steam; and in the vicinity of even small leaks, the iron of the engines, steam pipes, etc., is covered with a white coat of this impalpable powder. What will precipitate it (magnesia?) before it enters the boiler? A. Stop using tallow or any lubricant in the boiler, and let us know the result.

(5) A. F. E. asks: What are vernier callipers? A. We shall shortly publish an illustrated description of these instruments.

(6) J. H. asks: What is the best method of gumming postage stamps? A. Make a clear white solution of gum arabic, and add a little powdered sugar. The sugar prevents the paper from curling up when dry.

(7) M. T. asks: How can I clean a white ostrich feather? A. Put 1 oz. Castile soap in 1 pint water. Wash the feather in this, and rinse in pure water.

(8) L. S. asks: What is the best method of reducing buffaloeskins to a uniform thickness? A. This is best done by perching them, that is, scraping them on the flesh side with a semi-circular knife.

(9) A. S. asks: How are purple, red, and violet inks made? A. For purple, use a strong decoction of logwood, to which a little alum or chloride of tin has been added. For red, take Brazil wood 1 oz., white vinegar 1 pint; macerate for 4 or 5 days; boil down to one half; add roche alum ¼ ozs., gum arabic 5 ozs.; bottle for use. For violet, proceed as for purple, but make the ink thinner.

(10) J. I. R. and many others ask: How can I make an æolian harp, to be strung with fine violin strings? A. Make a box of very thin cedar, pine, or other soft wood, 5 or 6 inches deep. 7 or 8 inches wide, and of a length just equal to the width of the window in which it is to be placed. Across the top, near each end, glue a strip of wood half an inch high and a quarter of an inch thick, for bridges. Into the ends of the box insert wooden pins, like those of a violin, to wind the strings around; put two pins in each end. Make a round hole in the middle of the top, and string the box with small catgut or first (E) fiddle strings. Fastening one end of each string to a metallic pin in one end of the box, and carrying it over the bridges, wind it around the tuning pin in the opposite end of the box. The ends of the box should be increased in thickness where the wooden pins enter, by a piece of wood glued up on the inside. Tune the strings in unison, and place the box in the window. It is better to have four strings as described, but a harp with a single string produces an exceedingly sweet melody, of tones which vary with the force of the wind.

(11) H. C. S. asks: Are any scales formed on the inside of a boiler above the water line? A. Generally, no.

Will hard rubber, either red or black, soften under a pressure of 200 lbs. to the square inch on the inside of the boiler? A. We think so.

(12) G. T. S. asks: To whom is due the credit of the revolving or repeating fire arm? A. It was first practically introduced by Colonel Samuel Scott, his first patent being dated in 1835. There is, however, in the Tower of London, a match-lock gun, used four centuries ago, having a revolving breech made on a principle somewhat similar to that employed in the Colt's revolver. There is a pistol similarly constructed at Warwick Castle, England.

(13) H. B. asks: Which of the two link motions, Stephenson's or Gooch's, was invented first? A. The two were invented at almost the same time. What is commonly known as the Stephenson link was applied by the inventor, Mr. Howe, in 1843.

(14) C. C. says: My steam gage indicates 5 lbs. when everything is cold. I called the attention of my employer to it, but without success. Is it safe to continue the use of it in its present condition? A. It should be tested immediately.

I have a dog that is pestered with fleas. What will exterminate them? A. Carbolic soap.

(15) A. L. C. asks: Please give me a process for galvanizing small wrought iron rods. A. Clean the iron, cover it with a solution of sal ammoniac and hydrochlorate of zinc, and dip it into molten zinc.

(16) J. F. asks: What have I to learn in order to pass an examination as railroad or steam-boat engineer? A. You must be able to answer questions about the construction, management, and repairs of engines and boilers, and must present evidence of your former experience with steam machinery.

(17) S. C. asks: How many tons of hay are contained in a stack whose circumference is 67 feet and height 205 feet, a ton measuring 512 cubic feet? A. About 143.

(18) J. H. C. asks: On what principle does the air railroad brake work? A. Under each car there is a cylinder with piston. The latter is connected with the levers of the brakes. Pipes lead from the cylinder to an air chamber on the locomotive. The chamber is charged with air at a high pressure by means of a small steam air pump on the locomotive. To operate the brakes, the engineer opens a cock by which the compressed air is allowed to act on the brake pistons under the cars, thus instantly working all the brakes at once.

(19) E. asks: Is there any particle of a car wheel in a moving train perfectly still? It is said by some that that atom of matter directly under the center of the wheel, touching the rail, is perfectly still for an infinitely short space of time; that if such was not the case, the wheel would slide on the rail. It is said to have been discussed at a meeting of railroad engineers and decided affirmatively; but I cannot believe it without the SCIENTIFIC AMERICAN decides that such is the case, and even then I am afraid that I cannot understand it. A. The answer to this question depends upon what is meant by "perfectly still." The facts of the case are as follows: If the car wheel is revolving at a uniform rate, every point in the circumference is moving at the same rate of speed in a circle; but each point in the circumference is moving away from a fixed station, say a post by the side of the track, at a different rate of speed; and any point in the circumference, when it touches the rail, is at rest momentarily, with respect to the fixed station.

(20) J. B. asks: Will an overshot water wheel, 20 feet in diameter and 3 feet wide, run a 50 inch circular saw, with proper gearing? A. Yes, if there is plenty of water.

(21) B. F. F. asks: What quantity of water will be forced through a pipe 1 inch in diameter, under a pressure of 62 lbs. per inch? A. Mr. R. H. Buel gives the following formulas, which give average results: L=length of pipe in feet. D=diameter of pipe in feet. A=area of pipe in square feet. V=velocity of water, in feet per second. H=head of water, in feet, to give the required velocity. h=theoretical head required for same

velocity. F=head, in feet, required to overcome friction. P=pressure per square inch equivalent to given head. Q=number of cubic feet of water delivered by pipe per second.  $H = \frac{0.000625 \times L \times V^2}{D}$

$h = \frac{V^2}{64.4}$ .  $F = H - h$ .  $P = H \times 0.433$ .  $H = P \times 2.308$ .  $V = \frac{Q}{A}$ .

(22) C. M. B. asks: How can I cement a hair bracelet into a gold clasp? A. Melt together equal parts of clear resin and pure gum rubber. Apply hot.

(23) M. F. asks: What are gold pens pointed with? A. Gold pens are now almost universally tipped with the native ore of the metals iridium and osmium. Diamonds and rubies were formerly employed for this purpose.

(24) Q. Q. Q. asks: What preparation, when written with on blue paper, produces a white mark by discharging the color from the paper? A. Use a dilute solution of oxalic acid in water.

(25) W. B. H. says: You speak of water conducted through galvanized iron pipe tending to dangerous results. I have a reservoir holding 50 gallons, made of galvanized iron. The water comes in lead pipe into the bottom of the reservoir, and discharges through lead pipe near the top, leaving the reservoir to stand nearly full of soft water. Is this water injurious? If so, what paint or other substance can I apply to the inner surface, that will prevent the poisonous effect of the zinc, without injury to the water? A. The question as to whether the water is rendered unwholesome by its passage through the pipes and reservoir depends upon the character of the water itself. Waters containing a small quantity of certain mineral substances in solution are not affected by these metals, while, on the contrary, but a small quantity of other mineral salts may have a very deleterious action upon the quality of the water when in contact with the same metals. You should have a chemical examination made of your water.

(26) W. H. H. M. and others, who ask as to the qualities of certain waters: We are not able to give you decisive answers without first having given the waters a chemical examination.

(27) G. W. W. says: Please tell me how to prepare lime for the oxyhydrogen light. A. Select a piece of good, thoroughly and newly burnt lime, as free from sand as possible; and by means of a saw and knife, cut out a piece about 2 inches long and ¾ inch in diameter. Trim this down to the form of a cylinder, and it is ready for use. These limes, when not in use, should be kept in small, dry, airtight bottles.

(28) C. H. asks: What substance is used on the cushions of hard rubber plate frictional electric machines? It is a powder very much like coarse gold bronze. A. Take zinc and grain tin, each 1 oz.; melt in an iron ladle, and add mercury (hot) 8 ozs.; stir with an iron rod, pour into a well chalked wooden box, and agitate until cold; or stir till cold, and then powder. Keep in a well corked glass bottle.

(29) K. L. asks: 1. What is the best and most convenient article for covering steam pipes, running to radiators for heating public or private buildings? A. Felt bound in canvas. 2. When laid in a box under ground, what is the best filling? A. Plaster of Paris. 3. Would you paint the pipes with coal tar before covering or filling? A. Give them a coat of red lead paint. 4. Is coal tar a conductor of heat? A. Yes.

(30) J. C. B. asks: At what season of the year is it best to trim trees and bushes, and why? A. Timber trees are usually felled in the winter, when the trunks and bark are free from sap. Fruit trees are trimmed in the spring, that the vigor of the tree may be expended in the fruit instead of on the growth of the tree.

(31) M. W. asks: How is the metal calcium obtained? A. By igniting the iodide of calcium with an equivalent quantity of sodium in an iron crucible, having its lid screwed down.

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

E. D. E.—Both specimens consist, chemically speaking, of siliceous and silicates of lime, alumina, and iron, with some carbonate of lime and iron. They are valuable only for polishing purposes.—D. H.—Your box, which came to hand some time before your letter, contained (if we remember rightly) particles of decomposed mica.—J. F. B.—It is iron pyrites imbedded in talcose schist. No further results are given by analysis.—B. F. B.—No. 1 contains a very minute percentage of silver. It is galena. No. 2, no silver detected.—C. H.—One is a piece of water-worn coral. The other is part of a tibia of some animal.—E. C. M.—We will require the root of the unknown plant, with the leaves, stem, and blossom, before we can classify it.—D. W. S.—It is sulphuret of iron.—D. K.—No. 1 does not contain nickel. No. 2 does not contain silver.—F. A. W.—It has a very slight trace of tin.—H. N. L.—It is not gold.—D. M. S.—They are very nice specimens of sulphuret of lead or galena.—R. H. C.—It is mica in quartz.—A box of specimens forwarded by S. D. M. contained many pieces of bituminous coal, marked with the curious disks referred to in the SCIENTIFIC AMERICAN of June 12. In opposition to the explanation there given, S. D. M. says: "While the material forming the coal was in a semi-fluid state, the bitumen in part composing it contained an oil of some kind not chemically mixed with it, which, when the enormous pressure took place on the stratum forming the coal, attempted to escape, and finding space to spread, did so in the very slight openings left by the cool crystals. These, becoming dry as it were, formed those pellicles or films, which in turn protected the spots from being oxidized by



the atmosphere or water with which the then forming coal was surrounded." The author of this theory has of course considered the probability of the existence of so peculiar an oil, and of its forming when squeezed into cracks. He has also considered the fact that these structural peculiarities exist in many different varieties of coal, anthracite included. Mineral impurities are apt to accumulate along planes of cleavage or structure. We have no experimental data to prove the justness of the theory heretofore given in this particular instance. The specimens of specular and pot ore are fine. The kaolin is much colored by yellow hydrated oxide of iron. The pinkish gray stone is an inferior variety of asbestos.

#### COMMUNICATIONS RECEIVED.

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

- On a Cheap Telescope. By W. K.
- On the Origin of Man. By H. M. S.
- On a Magic Square. By A.
- On Exterminating Grasshoppers. By J. P.
- On Veneered Diamonds. By J. W. M.
- On Sleeping Cars. By J. I. S.
- On a New Explosive Agent. By M. O. N.
- On American Inventions in Europe. By T.
- On the Wants of the Age. By H. B. C.
- On Coal. By S. F. V. F.
- On the Persecution of Galileo. By C. J. W.
- On Preventing Colds. By G. F.
- On Weather Predictions. By M. O. R.

Also inquiries and answers from the following:  
H.—W. A. K.—A. H. R.—O. W. M.—R. B. R.—H. P.—A. W. P.—G. R. B.—A. A. H.—W. T. S.—H. C. P.—W. F. H.—R. E. 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 giant powder, vulcan powder, etc.? Who sells acetometers? Who sells draining machines? Who sells bicycles? Who makes wire fencing? Who sells fittings for model boats? Who is the best process for drying timber? Who makes chains of malleable cast iron? Who sells small steam engines? Who sells twine-making machinery? Who sells the best boiler and steam pipe covering?" 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

October 12, 1875.

AND EACH BEARING THAT DATE.  
(Those marked (r) are reissued patents.)

Aerial vessel, F. E. Schmidt.....	168,788
Agricultural implements, etc., E. Wansbrough.....	168,689
Air and gas engine, G. W. Daimler.....	168,623
Air, purifying, A. S. Lyman.....	168,654
Air injector, W. M. Storm.....	168,678
Alarm, burglar, J. Pennepacker.....	168,777
Barge coal, Martin and Preston.....	168,655
Barrels, manufacture of, Phillips & Reid (r).....	6,699
Bed salt, T. L. Odell.....	168,664
Beefsteak tender, T. Billington.....	168,602
Bell, door, C. Coleman.....	168,721
Blank book, pocket, A. V. S. Smith.....	168,796
Boiler sediment collector, J. Popper.....	168,799
Bolt and rivet cutter, D. M. Kelley.....	168,568
Book-stitching machine, L. Goddu.....	168,736
Boot counters, skiving, T. Andrews.....	168,596
Boot uppers, embossing, E. B. Stimpson.....	168,804
Box machine, J. Kisor.....	168,752
Brick machine, J. R. Cross.....	168,724
Brick machine, W. L. Gregg.....	168,564
Brick machine, L. Patterson.....	168,667
Bricks, pressing, Durand & Marais.....	168,780
Bricks, etc., drying, A. Morand.....	168,765
Broom winding machine, Walrath & Bronson.....	168,814
Brush, sponge, H. S. Kerr (r).....	6,692
Building materials, elevating, G. H. Kammacher.....	168,749
Burial case, glass, S. H. Brooks.....	168,606
Burner, gas, E. Blackman.....	168,554
Burner gasoline, J. C. Riley.....	168,783
Button fastening, J. H. Harrington.....	168,638
Button hole cutter, J. A. Sidle.....	168,794
Car brake, J. N. Sawkins.....	168,585
Car doors, operating street, D. Shield.....	168,791
Car, sleeping, F. W. Parsons.....	168,579
Car, street, J. Stephenson (r).....	6,696, 6,697
Car ventilating screen, C. F. Bridgman.....	168,712
Cars, cinder warden for, J. J. W. Taylor.....	168,681
Carburetor, W. D. Snow.....	168,797
Card, playing, A. Dougherty.....	168,626
Carpet stretcher, H. Goss.....	168,633
Carriage axle, A. E. Smith (r).....	6,664, 6,665
Carriage axle nuts, die for forging, H. Hammond.....	168,740
Carriage, child's, E. Krueger.....	168,647
Cartridge, blasting, Smith & Egge.....	168,795
Chair, folding, I. N. Dann.....	168,725
Chair, tilting, S. Hoffman.....	168,744
Chandeller, R. Marsh.....	168,573
Chimney cowl, T. K. Griffith.....	168,738
Churn, W. P. Jones.....	168,746
Circus seat, G. F. Fisher.....	168,631
Cigarette maker, J. Shepard.....	168,790
Clamp, Walker & Devoe.....	168,593

Clams and oysters, preparing, C. Alden.....	168,703
Clock lock work, Covell & Robinson.....	168,620
Clothes dryer, A. Bragonier.....	168,605
Clothes dryer, S. R. Kidder.....	168,751
Clothes dryer, S. P. Macey.....	168,658
Clothes dryer, L. A. Wait.....	168,688
Cock, compression, J. McLaughlin.....	168,657
Compass, mariner's, N. H. Dibble.....	168,726
Corn husker, W. A. Dick.....	168,624
Cradle, folding, Welch & Jefferys.....	168,691
Curry comb, C. A. Hotchkiss.....	168,745
Curry comb, R. F. Walsh.....	168,815
Cutter and cutterholder, T. T. Nash.....	168,576
Damper, automatic, S. F. Gold.....	168,737
Dental filling, L. W. Sutton, Jr.....	168,680
Desk and wash stand, E. E. Everitt.....	168,732
Diaper pin, I. W. Stewart (r).....	6,698
Door securer, G. Burt.....	168,556
Doors, hanger for sliding, L. A. Cook.....	168,618
Drill, planter, and roller, S. Brown.....	168,714
Drill stock, J. Hammond.....	168,741
Dropper, potato, G. H. Zane.....	168,702
Dry dock, hydraulic lift, T. A. Blake.....	168,693
Eaves trough hanger, W. E. Manrow.....	168,572
Egg carrier, W. Wells.....	168,692
Electric machine, magneto, L. Drescher.....	168,560
Emery wheel, turning, J. D. Huntington.....	168,643
Engine, road, J. H. Bange.....	168,600
Engine, steam, G. B. Stevenson.....	168,803
Engine packing, W. Peters (r).....	6,688
Equalizer, draft, S. E. Winsor.....	168,699
Equalizer of spring power, J. W. H. Doubler.....	168,729
Fare box, A. J. Cortis.....	168,619
Fare box, W. J. Cwling.....	168,722
Fare box, H. Tupper (r).....	6,689
Feather renovator, H. I. Linn.....	168,571
Fence, iron, T. J. W. Robertson.....	168,785
Fence wire, barbed, Armstrong and Doolittle.....	168,550
Fire arm, revolving, W. H. Elliot.....	168,562
Fire extinguisher, B. F. Clemmshaw.....	168,720
Fire extinguisher, P. M. Doughty.....	168,627
Fire place, portable, E. White.....	168,821
Flat iron, F. Sterzing.....	168,800
Flooring board, S. A. Reed.....	168,672
Flour, packing, L. Mowry.....	168,767
Fruit dryer, J. P. Nessel.....	168,769
Furnace for brick kilns, W. S. Colwell.....	168,617
Furnace for steam boilers, S. Moses.....	168,766
Furnace grate, J. Old.....	168,770
Furniture caster, J. F. Ohmer.....	168,773
Game board, W. F. Lamb.....	168,570
Gas, making, P. W. Mackenzie.....	168,758
Gas governor, S. D. Baldwin.....	168,551
Gas heater, G. Mooney.....	168,764
Gas holders, vertical bar for, J. W. Starr, Jr.....	168,799
Gas lighting, electric, R. Chamberlin.....	168,614
Gas shade support, F. F. McGann.....	168,761
Gate fastening, W. Leach.....	168,754
Glue, apparatus for cutting, H. Stevens.....	168,801
Glue, preparing and drying, H. Stevens.....	168,802
Gold from other metals, separating, C. Wiegand.....	168,695
Grate and stove front, J. Old.....	168,771
Grate bar, W. C. Childs.....	168,615
Grate bar, G. W. Todd.....	168,684
Grinding and amalgamating pan, C. Cummings.....	168,621
Grindstone frame, G. A. Whitney.....	168,694
Hame, S. Shultz.....	168,793
Hame and collar, combined, T. C. Love.....	168,756
Harness, W. H. B. Diehl.....	168,625
Harrow, C. H. McGinnis.....	168,762
Harvester, J. E. Buxton.....	168,609
Harvester, C. Liden.....	168,653
Harvester, A. Palmer.....	168,578
Harvester dropper, Ratliff and Towle.....	168,670
Hat bodies, stretching, R. Eickemeyer.....	168,741
Hatchway brace, J. Fleming.....	168,680
Heater, feed water, G. L. McCahan.....	168,760
Heater, fire place, J. B. Oldershaw.....	168,772
Heater, gas, G. Mooney.....	168,764
Hinge, B. Turner.....	168,592
Hoe, A. A. Porter.....	168,780
Hog lifter, N. Caldwell.....	168,612
Holisting machine, J. Wallace.....	168,594
Hooks, wardrobe and other, C. H. Thurston.....	168,682
Horse collar, E. B. Crawford.....	168,723
Horses from cribbing, preventing, A. C. Tickner.....	168,683
Hydrant, G. C. Bailey.....	168,599
Ice machine, J. M. Beath.....	168,706
Indicator, station, P. H. Harris.....	168,639
Inkstand base, L. Rosenfeld.....	168,673
Insole, Blossom and Clark.....	168,604
Jack, lifting, S. E. Mosher.....	168,668
Jack, lifting, J. L. Vail.....	168,811
Jacket, hunting, H. L. Daigre.....	168,622
Jigger, J. B. Wilford.....	168,698
Journal box, J. Schellkopf.....	168,787
Key fastener, W. W. White.....	168,693
Knife sharpener and polisher, E. A. Bushell.....	168,717
Knife, shoemaker's, A. C. Wetherbee.....	168,818
Lamp bracket, D. Barcellos.....	168,705
Land marker, J. Augspurger.....	168,598
Lander, Clark and Kintz.....	168,616
Lard-rendering tank, N. Caldwell.....	168,611
Lard tank skimmer, N. Caldwell.....	168,610
Lath machine, J. C. Mackey.....	168,759
Ledger rest, F. O. L. Buck.....	168,615
Lever power, H. C. Bell.....	168,601
Lever, track lifting, W. H. Hargis.....	168,742
Lubricator, J. W. Reed.....	168,671
Measure, variable, C. P. Sullivan, Jr.....	168,679
Mechanical device, J. F. Kelley.....	168,645
Mechanical movement, J. McCloskey.....	168,575
Mill, disintegrating, J. M. Hendricks.....	168,642
Mining machine, J. J. Weinle.....	168,817
Mortising machine, Wilder et al.....	168,696
Mower, lawn, Turnbull and Frost.....	168,810
Mowing machine, D. Wolf.....	168,700
Neck tie, R. R. Parker.....	168,666
Nut fastening, R. C. Watson.....	168,690
Nut lock, J. B. Atwood.....	168,597
Oil reservoir, safety, T. Scantlin.....	168,676
Oils, burning, E. E. Rice.....	168,702
Ordnance, shell for, G. E. Walker.....	168,813
Organ etc., B. Dufner.....	168,561
Organ coupler, J. R. Perry.....	168,778
Pad and collar fastener, A. Racine.....	168,781
Padlock, W. Raether.....	168,669
Pan, J. C. Milligan.....	168,652
Paper collar, S. S. Gray (r).....	6,691
Paper fastener, J. M. Blanchard.....	168,709
Paper machine stuff regulator, J. W. Huested.....	168,746
Pavement, brick, H. M. Stow.....	168,805
Pessary, T. Brauns.....	168,711
Piano and organ ottoman, J. Miller.....	168,661
Pipe coupling, Flagler and Dodge.....	168,733
Planing machines, feed of, Lawrence et al.....	168,650
Planter and cultivator, combined, C. F. Keller.....	168,750
Planter, corn, A. Fox.....	168,632
Planter, seed, W. C. Champion.....	168,718
Plow, gang, D. Kendig.....	168,646

Plow, sulky, S. F. Woodworth.....	168,595
Power, transmitting, J. W. Woodruff.....	168,701
Press and former, brick, A. J. Haws.....	168,743
Press, cotton, B. F. Platt.....	168,668
Press for baling cotton, etc., C. B. Churchill.....	168,557
Press, punch, A. H. Merriman.....	168,763
Printing press, Griffith and Byrne.....	168,635
Printing press feed gage, S. D. Tucker.....	168,685, 168,686
Pulley, Betts and Howie.....	168,708
Pump, plunger, Hartley and Marshall.....	168,640
Pump, steam and vacuum, O. Jackson.....	168,747
Punch press, A. H. Merriman.....	168,763
Radiator tube, E. Russell.....	168,674
Railroad rail joint, H. Allen.....	168,704
Railroad rail joint, C. Dittman.....	168,558
Railroad track gage, S. Holbrook.....	168,567
Railroad track scales, T. Fairbanks.....	168,629
Rake, horse hay, Barclay and Kennedy.....	168,552, 168,553
Rake, wheel hay, C. La Dow.....	168,648
Regulator, pressure, J. Taylor.....	168,807
Revolvers, locking catch for, F. H. Allen.....	168,549
Roll for rolling metal, G. P. Salisbury.....	168,534
Roof, iron, M. A. Shepard.....	168,587
Running gear, L. C. A. Schmidt.....	168,586
Sash holder, J. B. Wilford.....	168,697
Sash lock, McGregor & Voll (r).....	6,693
Saw for cutting stone, diamond, H. Rung.....	168,766
Saw handle, crosscut, C. M. Tanner.....	168,590
Saws, dressing circular, W. Potter.....	168,530
Sawing machines, driving, F. Miller.....	168,660
Screen holder, adjustable, G. A. Blodgett.....	168,710
Screw thread cutters, making, T. T. Nash.....	168,577
Separator, grain, H. Mielke.....	168,659
Sewing machine, L. Lyon.....	168,757
Sewing machine bobbins, filling, G. Gowing.....	168,634
Sewing machine gatherer, A. Everess (r).....	6,690
Sewing machine hemmer, W. L. Kutzum.....	168,753
Sewing machine, short thread, J. S. Hall.....	168,637
Sewing machine treadle, W. B. Higgins.....	168,565
Shade fixture, Brooks & Morell.....	168,713
Shoemaker's knife, A. C. Wetherbee.....	168,818
Shutter bower and fastener, Fellows & Finnezan.....	168,663
Splindle bolster, W. Jenckes.....	168,644
Spinning ring traveler, H. Halvorson.....	168,739
Square, slotted framing, J. H. McInnes.....	168,656
Stereoscope, W. H. Lewis.....	168,652
Stone, artificial, P. B. Doty.....	168,559
Stone, artificial, Lemon & Metcalf.....	168,651
Stove attachment, cooking, T. R. Timby.....	168,809
Stove door knob, M. W. Gardner.....	168,756
Stove leg, W. Tanner.....	168,596
Stove platform, S. L. Warren.....	168,814
Street sweeper, O. W. Kellogg.....	168,569
Sugar, splitting hard, Dinkel & Elmenhorst.....	168,728
Temple teeth, setting, N. Chapman.....	168,719
Tobacco-cutting machine, A. A. Hagen.....	168,636
Tool handle, J. C. Sears.....	168,789
Toy, J. J. White.....	168,819
Toy spring gun, P. R. Voorhees.....	168,812
Trap, animal, W. A. Shigley.....	168,792
Trunk fastener, R. Hilton.....	168,566
Trunk fastening, J. F. Simpson.....	168,677
Tubes, sealing ends of iron, D. C. Stillson.....	168,588
Tubing sectional core, Lemon & Cameron.....	168,755
Type-setting machine, D. B. Thompson.....	168,591
Tyretightener, W. H. Swarthout.....	168,806
Umbrella, cane, W. E. Engelhardt.....	168,628
Valve, W. Painter.....	168,775, 168,776
Valve, G. T. Taylor.....	168,808
Vehicles, elevator for, R. R. Robert.....	168,784
Vehicles, running gear for, C. M. Murch.....	168,768
Violin, H. W. White.....	168,820
Violin, guitar, etc., J. Oehrlin.....	168,665
Wagon, dumping, J. Bond.....	168,555
Wagon jack, B. W. Stanton.....	168,798
Wagon wheel scraper, N. Sage.....	168,675
Washer cutter, E. Brulé.....	168,607
Washing machine, G. W. Gilbert.....	168,735
Watch, E. J. Pacaud.....	168,774
Watches, barrel arbor for, A. H. Potter.....	168,583
Watch compensation balance, A. H. Potter.....	168,581
Watch escapement, A. H. Potter.....	168,582
Water closet, W. S. Carr.....	168,613
Water wheel, J. L. Helmer.....	168,641
Wells, apparatus for walling, Beach & Marshall.....	168,707
Wind wheel, horizontal, F. Burt.....	168,608
Windmill, J. M. May.....	168,574
Wire sign and banner, Upham, Garrett, & Tully.....	168,687
Wood splitter, W. Latus.....	168,649
Wringer, H. A. Buck.....	168,716
Wringer, T. J. Dickerson.....	168,727

#### DESIGNS PATENTED.

8,706.—LANTERN.—C. Herter, New York city.
8,707.—NEWELL LIGHT.—C. Herter, New York city.
8,708.—BOTTLES.—G. Jaques, Boston, Mass.
8,709.—COFFIN HANDLE TIPS.—G. Rogers, West Meriden, Conn.
8,710.—BUTT HINGES.—E. J. Steele, Westville, Conn.
8,711.—LATCH HANDLES.—E. J. Steele, Westville, Conn.
8,712.—DRAWER PULLS.—E. J. Steele, Westville, Conn.
8,713.—FOUNTAIN.—W. Tweeddale, Brooklyn, N. Y.
8,714.—TYPES.—J. M. Connor, Greenville, N. J.
8,715.—SHIRT BOSOM.—C. H. Horsfall, New York city.
8,716.—INKSTANDS.—C. M. Jenckes, New York city.
8,717.—MONUMENTS.—W. T. Price, Circleville, Ohio.

#### 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,  
October 5 to 20, 1875.

5,258.—J. Shirreff, Chatham, N. B. Freezing and refrigerating machine. Oct. 5, 1875.
5,259.—J. S. Rogers, Gloucester, Mass., U. S. Process of manufacturing gelatin. Oct. 5, 1875.
5,260.—D. Hawkesworth, Digby, N. S. Spark arrester. Oct. 5, 1875.
5,261.—D. Steele, Hamilton City, Ont. Apparatus for extinguishing fires. Oct. 5, 1875.
5,262.—P. Wood, Uxbridge, Ont. Shaft coupling for cutters. Oct. 5, 1875.
5,263.—I. Hahn, Pittsburgh, Pa., U. S. Hydraulic crane. Oct. 5, 1875.
5,264.—A. Bettes, Warrensburgh, Miss., U. S. Heating stone. Oct. 5, 1875.

5,265.—T. Kane, Hamilton City, Ont. Coal ash sifter. Oct. 11, 1875.
5,266.—T. X. Bellefeuille et al., Trois Rivières, P. Q. Horse power. Oct. 11, 1875.
5,267.—E. Pitch et al., New Liverpool, P. Q. Paper match box machines. Oct. 11, 1875.
5,268.—C. Z. Mattison et al., St. Louis, Mo., U. S. Spinning machine. Oct. 11, 1875.
5,269.—E. Balkema et al., La Fayette, Ind., U. S. Wagon axle. Oct. 11, 1875.