

Business and Personal.

The Charge for Insertion under this head is \$1 a Line.

Agricultural Implements, Farm Machinery, Seeds, Fertilizers. R. H. Allen & Co., 185 & 191 Water St., N.Y.

Magic Lanterns, Stereopticons of all sizes and prices, for Parlor Entertainment and Public Exhibitions. Pays well on small investment. Catalogues free. McAlister, Man'g., Optician, 49 Nassau St., N.Y.

Fleetwood Scroll Saw, with Boring Attachment, or all descriptions of light Scroll Sawing. See adv't., page 33. Trump Bro's, Manufacturers, Wilmington, Del.

Wanted—A situation by a first class Tool Maker, to work on Tools or Model Work. Would prefer situation with some one Experimenting. Also competent to take charge of men. Address P. O. Box 601, Stamford, Conn.

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. T. Holland, 57 Gold St., New York.

Nickel Plater's Complete Set—Nickel Anodes, all Salts, &c. L. Feuchtwanger & Co., 180 Fulton St., N.Y.

A Manufacturing Co., having unemployed machinery and capital, would like to purchase an established business, or secure the right to make some useful implement—in the hardware line—protected by a patent. Address Manufacturer, Box 3,760, P. O., New York.

For Sale, Cheap—The patent right for the best Broiler and Cake Baker out. Address Clayton Denn, Frankford, Pa.

Send for Circular of a very Superior Boiler Feed Pump. D. Frisbie & Co., New Haven, Conn.

Geo. P. Rowell & Co.—The success of this firm has been something unparalleled in the history of the business. We lately heard an anecdote related of a traveling representative of a well-known patent medicine firm who was endeavoring to contract with the publisher of a leading Western paper. "I am impressed," said he, "with your establishment; it reminds me of that of Geo. P. Rowell & Co., of New York, with only this distinction: you ask a great deal of money for a little advertising, and they give a great deal of advertising for a little money." This is the impression that many obtain and not without justice, for although Messrs. Geo. P. Rowell & Co. have never claimed to be able to insert advertisements in newspapers at lower prices than the publishers would accept from equally responsible advertisers, who furnish a similar amount of patronage, yet in this last clause lies much of their success. For some years they have been the largest customers of most of the newspapers published in the United States.—New York Standard, October 20th, 1870.

"Book-Keeping Simplified." The whole system briefly and clearly explained. Complete instruction. Cloth, \$1. Sent, post paid, on receipt of price. D. B. Waggener & Co., 424 Walnut St., Philadelphia, Pa.

The Whitmore Engine, 4, 5 and 10 H. P. Vertical Tubular Boilers, all sizes—at reduced prices. Lovegrove & Co., Philadelphia, Pa.

\$20,000, more or less, as needed, with services will be furnished by a person of experience in business, for an interest in a first class established and profitable Manufacturing Co. Address "Capital," Box No. 130, N.Y. Tribune.

Steel Springs tempered or made after pattern. J. F. Dabber, 48 Hicks St., Brooklyn, N.Y.

Every Metal Worker should have a Universal Hand Planer. Address J. E. Sutterlin, 60 Duane St., New York.

Circulars addressed and stamped ready for owner to mail. Lists of all trades, very complete. H. Walsh, Copyist, 6 Gold St., New York, up stairs.

Scientific Books. Send stamp for Illustrated Catalogue. E. & F. N. Spon, 446 Broome St., New York.

Petroleum Gas Works—J. D. Patton, Trevorton, Northumberland County, Pa. References: Sunbury (Pa.) Gas Light Co.; Mahanoy City (Pa.) Gas Light Co.; Ashland (Pa.) Gas Light Co.; Philadelphia & Reading R.R. Co., Reading, Pa.; Bloomsburg (Pa.) Gas Light Co.; Shamokin (Pa.) Gas Light Co.; Shenandoah (Pa.) Gas Light Co.; Col. W. R. Murphy, Trenton, N.J.

Screw Cutting Index & Rule for Compound Gearing, Price 10c. Address E. Lyman, C. E., New Haven, Ct.

Wanted—A second hand 15 or 18 inch turbine wheel. For information, address W. W. Shepherd, Fayetteville, N.C.

Soap Stone Packing, in large or small quantities. Greene, Tweed & Co., 18 Park Place, New York.

The Mystic Puzzle, or the Yankee's Dream. Sent by mail. Address, with 25 cts., W. F. & J. Barnes, Box 2,044, Rockford, Winnebago Co., Ill.

Extension Engine Lathe, the best Jobbing Lathe built. Send for cut to E. Harrington and Son, North 15th and Pennsylvania Avenue, Philadelphia, Pa.

Engines, 2 to 8 H.P. N. Twiss, New Haven, Ct.

Baltimore Steel Hoe Works, Manufacturers of the "Lockwood Hoe." Send for Sample and Price List.

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

To Inventors—A responsible firm wishes the right to manufacture some useful article in Cast Iron or Machinery, as a specialty. Address, giving description of article, "Machinist," Station B, Philadelphia, Pa.

Our Taper-Sleeve Belt Pulleys fasten securely, using no Keys, Set-Screws or Bolts. Our Dead-Pulleys stop all loose-pulleys and belts, attached to machinery not in actual use. Cold-Rolled Shafting, Collins' Couplings, best Hangers. A. B. Cook & Co., Erie, Pa.

Hand Fire Engines, Lift and Force Pumps for fire and all other purposes. Address Rumsey & Co., Seneca Falls, N.Y., U. S. A.

Metallic Pattern Letters and Figures, to put on patterns of castings, all sizes. H. W. Knight, Seneca Falls, N.Y.

Millstone Dressing Diamond Machines—Simple, effective, economical and durable, giving universal satisfaction. J. Dickinson, 64 Nassau St., New York.

Walrus Leather Wheels, for polishing Iron, Steel, and all fine Metals. Greene, Tweed & Co., 18 Park Place, New York.

For small size Screw Cutting Engine Lathes and Drill Lathes, address Star Tool Co., Providence, R. I.

Inventors of Electrical and Telegraphic arrangements are invited to communicate with the Electro-Magnetic M'fg Co., 36 Broad St., P. O. Box 1804, New York.

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

Wanted, by Manufacturer of Steam Engines and Standard Articles, \$20,000. Address John, 1802 Olive St., St. Louis, Mo.

Spinning Rings of a Superior Quality—Whitinsville Spinning Ring Co., Whitinsville, Mass. Send for sample and price list.

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement. Andrews' Patent, inside page.

Faught's Patent Round Braided Belting—The Best thing out—Manufactured only by C. W. Army, 301 & 303 Cherry St., Philadelphia, Pa. Send for Circular.

Temples and Oilcans. Draper, Hopedale, Mass.

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., 263 Broadway, New York, Makers. Send for free Illustrated Catalogue.

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

Engines and Boilers a Specialty—1st class: new patterns; late patents; reduced prices. Plain and Cut-off Horizontal and Vertical Engines; Hoisting Engines; the celebrated Ames' Portable Engines; Boilers of all kinds; Climax Turbine; and the best Saw Mill in the market. Large stock always on hand. Hampson, Whitehill & Co., 33 Cortlandt St., New York. Works at Newburgh, N. Y.

Buy Boulton's Paneling, Moulding, and Dove-tailing Machine. Send for circular and sample of work. B. C. Mach'y Co., Battle Creek, Mich., Box 27.

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

Blake's Belt Studs are the most reliable fastening for Rubber or Leather Belts. Greene, Tweed & Co., 18 Park Place, New York.

For Sale—One "Cottrell & Babcock" Water Wheel Regulator, in good order—by D. Arthur Brown & Co., Fisherville, N. H.

For Surface Planers, small size, and for Box Corner Grooving Machines, send to A. Davis, Lowell, Mass.

Planing Mill Machinery Wanted—Address, price and terms, Hunter & Tilley, Berkeley, Norfolk, Va.

Hotchkiss Air Spring Forge Hammer, best in the market. Prices low. D. Frisbie & Co., New Haven, Ct. Price only \$35.00. 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., 263 Broadway, New York.

For Solid Wrought-Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, &c.

Fairy Electric Engines, with battery complete, \$6; without battery, \$1. Electro-Magnetic Manufacturing Co., 36 Broad St.—P. O. Box 1804, New York.

Cast Iron Sinks, Wash Stands, Drain Pipe, and sewer traps. Send for Price List. Bailey, Farrell & Co., Pittsburgh, Pa.

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

Mechanical Expert in Patent Cases. T. D. Stetson, 23 Murray St., New York.

All Fruit-can Tools, Ferracite, 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.

Brown's Coalyard Quarry and contractor's Apparatus for hoisting and conveying materials by iron cable. W. D. Andrews & Bro., 414 Water St., New York.



R. can mold rubber by the process described on p. 363, vol. 32.—F. will find a description of harness oil on p. 234, vol. 30. Black ink is described on p. 203, vol. 29; it may be made copyable by the addition of a little refined sugar.—R. H. will find full directions for modeling in clay on p. 58, vol. 24.—W. F. should consult a physician.—T. F. W. will find directions for removing ink stains on p. 43, vol. 31.

(1) E. H. asks: 1. What was the name of the first steamship that crossed the Atlantic Ocean from west to east? A. The Savannah, in 1818. 2. What was the first steamship that crossed from east to west? A. The Savannah returned in the same year.

(2) J. P. L. asks: How can I tint tracing cloth so that the tinted places will not wrinkle? A. Common tracing cloth will wrinkle at the first touch of moisture; but there is an oiled or varnished cloth that can be tinted with water color.

(3) J. A. K. asks: How can I cement amber? A. Take 4 ozs. orange shellac and 3 ozs. strongest rectified alcohol. Digest in a warm place. When of the consistence of molasses, it is ready for use.

(4) G. F. asks: If a man takes a pistol loaded with ball, and shoots straight up in the air, standing so that the bullet should happen to hit him, would it not kill him? A. We think not, as the resistance of the air would affect its velocity. We would not care to try the experiment, however.

(5) F. H. asks: Which is the hardest, 14, 16, or 18 carat gold? A. 14 carat is the hardest of the three.

How long are the days on the equator? A. The days and nights at the equator, meaning by day, the time the sun is above the horizon, are equal.

(6) E. asks: 1. Can copper be tempered? If so, to what degree, and what is the process? A. It can be hardened by hammering or rolling, but the temper cannot be drawn as in the case of steel. 2. Did the ancients know of a process by which copper could be tempered as hard as steel is now? A. The very hard ancient tools and weapons were made from an alloy of copper with other metals.

(7) N. N. asks: What action will frost have on cast iron pipe 1/2 inch in thickness, about 20 inches under the street paving, with the water all out? A part of the pipe is flanged and bolted together; the other is common socket soil pipe with leaded joints. A. It would cause the pipe to contract somewhat in length; but if provision were made for this, it would give no trouble.

I am about to build some sprinkling tubs of 900 gallons capacity. Can you give me an idea of the best shape to make them, to get the widest spread of water? A. It makes little difference about the shape of the tub, as the spread of water is usually obtained by the use of a sprinkling pipe of suitable form. 2. Is fresh or salt water used for sprinkling the streets in New York city? A. Fresh water. 2. Is fresh water considered unhealthy? A. We do not consider it so. There are some persons, however, who do.

(8) E. H. asks: What is the radius of the sharpest curve that a train can safely turn? Is there any difference whether the train be long or short? Is there any difference whether it be an arc of 10° or the whole circle? A. We doubt whether any one can answer these questions, as there are many curves on railroads, to-day, that a few years ago were declared to be impossible. They are not desirable features, however, and most engineers make the curves as large as circumstances will permit.

(9) F. W. asks: How can I cut a design in iron, as on a watch case? A. The designs on watch cases are usually cut by a tool, either by hand or machine.

How can I polish iron and brass? A. Use emery cloth for iron, after it has been filed or turned, and polishing brick for brass.

What power can I get out of an engine with a cylinder, 3 1/2 inches bore by 6 inches stroke, with 80 lbs. of steam? A. From 2 1/2 to 3 horse power.

(10) W. D. asks: What kind of cement is generally used between French millstone blocks when they are put together? A. A mixture of alum, the dust of the stones, and water, or molasses.

(11) M. V. O. says: A question has arisen as to how the lead of the valve of a locomotive is affected by raising or lowering the link. One party contends that the lead is greatest when the reversing lever is in full gear, either forward or back, and is least as the lever is hooked up nearer the center of the quadrant. Another party thinks that the lead is increased by hooking up. How is it? A. Both parties may be right, since the lead increases by hooking up if the forward eccentric works the top of the link, and diminishes if the contrary is the case.

(12) W. S. W. asks: How can I set the valves of a locomotive? Can it be done without taking off the steam chest covers? A. It would require a treatise to answer your question. Consult Auchincloss on "Link and Valve Motions."

(13) R. C. asks: What are the ingredients and what their proportion for enameling iron pots, sauce pans, etc.? A. A paste is made by fusing together 100 parts by weight of calcined ground flints, and 50 parts calcined borax, grinding the product, mixing it with 20 parts potter's clay, and enough water to give it the proper consistence. The pot is lined with this paste, which is allowed to dry in a warm room. Then fuse together 125 parts white glass, 25 parts borax, 20 parts soda. Pulverize the compound; and make it into a paste with 4 lbs. of soda and a sufficient quantity of hot water. Cover the lining of the pot with the paste, and heat it in a muffle until the glazing is fused.

(14) P. W. D. says: My friend says that the same power that will run a circular saw through a log with a feed of 1/8 inch to revolution, will start the saw when standing in the middle of the log, with the same feed choking the teeth of the saw. I say that it will not. Who is right? A. Judging from the general practice of sawyers, who back the carriage when a saw stops in the cut, we should say that you were right. The amount in the difference of the two cases could only be determined by experiment.

(15) L. G. asks: What chemical preparation will purify or improve strong and rancid butter? I noticed recently an account of experiments (by Sonstadt) with iodate of calcium, which kept butter for three weeks, and rancid butter was improved by it; also that stale herring, immersed in a weak solution, came out perfectly fresh, etc. I sent for some of the iodate and received iodide of calcium. Is there any difference in the effect of the two salts? A. What you received is not the required salt, being a compound of calcium with iodine, whereas the salt employed for this purpose is a compound of calcium with iodic acid. The characteristic properties of the two are widely different.

(16) J. M. R. asks: 1. Would a shot gun barrel manufactured of decarbonized steel be apt to burst? A. We do not think it would be perfectly safe. 2. Is not decarbonized steel a fancy name for common iron? A. Probably.

(17) L. S. C. says: In a recent issue you state that a large circular saw requires more driving power than a small one, which is apparent, the number of revolutions per minute being the same with both saws; but will it require more power to drive a sixty inch saw, through a piece of timber, than a thirty inch saw, time employed being the same and size of timber the same in both cases? I claim that the larger saw will require only half the number of revolutions to give the same speed to the teeth as the smaller, and that the same power will do the same work in the two cases. A. You appear to have the correct idea. As we recollect the former question, however, it was supposed that both saws made the same number of revolutions per minute.

1. Does water expand in passing from the boiling to the freezing point? A. Yes. 2. Will a piece of ice exposed to an atmosphere of zero become as cold as the atmosphere, or as cold as any other object exposed in same atmosphere, or does it remain at same temperature as when changed from water to ice? A. Yes. 3. Does it expand in passing from 32° to zero? A. It will contract.

(18) E. E. K. asks: 1. Would a receptacle having an internal hydraulic pressure sufficient to show an external moisture cause the cast iron receptacle to break? A. Not necessarily. It would depend upon the strength of the receptacle or casting. 2. If such moisture should appear, would the internal pressure be reduced? A. We think not. 3. Would a constant pressure producing such a moisture eventually fracture a casting? A. Not necessarily.

(19) P. & W. ask: 1. How are burglar alarms applied to the doors and windows of a dwelling house? A. Strips of metal are attached to the doors and windows, and to the frames, in

such a manner that the raising of a window or the opening of the door will close a circuit and ring a bell. 2. What kind of a battery is best? A. A Callaud, Smee, or Leclanché battery will furnish a cheap and constant electromotive force, and all are equally good.

(20) R. asks: How can india rubber be hardened? A. Take 30 parts sulphur, and 70 parts pure rubber cut fine, mix thoroughly, put into a mold; keep under pressure of about 12 lbs. to the inch in a heat of 315° Fah. for 2 hours.

(21) G. C. P. Jr. asks: How can I make printer's ink? A. Take balsam capivi 9 ozs., lamp-black 3 ozs., indigo and Prussian blue together 1 1/2 ozs., Indian red 3/4 oz., yellow turpentine soap (dry) 3 ozs. Grind to an impalpable smoothness.

(22) W. H. H. asks: Can you give me a recipe for a baking powder containing ammonia? A. Take tartaric acid 1/4 lb., alum 1/2 lb., bicarbonate of soda 3/4 lb., farina 1 lb.; powder them all, dry, mix, and add 3 ozs. sesquicarbonate of ammonia in powder. Keep closely packed or in a stoppered bottle.

(23) J. J. asks: How can I solder brass? A. Mix copper and zinc in equal proportions, cover the surfaces to be joined with a paste of borax and water, put in the alloy in powder, lute together, and hold in a flame till the solder melts.

(24) C. A. R. asks: How can I soften old putty on window frames? A. Pass a red hot iron over it, near the surface of the putty.

(25) F. M. H. asks: What materials are used in making a nickel solution for plating with? A. Dissolve the nickel in nitric acid; add cyanide of potassium to precipitate the metal. Wash the precipitate, and then dissolve it by the addition of more cyanide of potassium. Another method is to precipitate the nitrate solution with carbonate of potash. This should be well washed, and then dissolved in cyanide of potassium. This method of preparing the nickel-plating solution is simple and good. The electrotyping is done by a process analogous to that of silver plating. Of course you must use an electrode of nickel.

(26) W. H. F. asks: 1. Given the resistance of a line, how shall I determine the electromotive force necessary to operate it? A. You require about one volt for each 80 ohms, or about one cell of Daniell or gravity battery for each two miles of wire. 2. Can you give me the average resistance of No. 23 copper wire, B. W. G., at 60° Fah.? A. It is 83-16 ohms. 3. What is the electromotive force of the ordinary Hill gravity battery compared with the electroplating cell? A. Calling the electroplating 100, the electromotive force of the Hill, Callaud, gravity, Minotti, Eagles, or any other modification of the Daniell battery, is 56.

(27) A. M. says: I would often make use of the electric light if the Grove and Bunsen batteries were not so troublesome. I have seen a metallic battery praised as the most powerful of constant batteries. Could I produce, with such a battery, an electric light equal to one produced by 50 Groves (the platinum being 6 by 2 1/2 inches), and what number of cells would be required for this purpose? A. Yes. It would require 100 cells.

(28) C. C. asks: 1. In electrotyping, must the wood blocks or engravings be oiled before taking a wax impression? A. No. Brush them over with black lead. 2. How is the electro deposit removed from the wax (after it is taken out of the battery) so as to be perfectly true and level? A. Melt the wax by dipping the plates in hot water. 3. What is the metal backing composed of? A. Lead. 4. How long must it remain in the battery to receive a sufficient coat of copper for ordinary printing? A. About 24 hours. 5. What battery would be necessary for electrotyping an engraving 4 inches square? A. Two cells of a Daniell or Callaud battery.

(29) C. E. C. asks: What are the best treatises on electroplating? A. "Elements of Electro-Metallurgy," by Alfred Smee; "A Manual of Electro-Metallurgy," by James Napier; Walker's "Electrotype Manipulation;" Sturgeon's "Art of Electrotyping;" and How's "Manual of Electro-Metallurgy."

(30) E. T. T. says: A friend and myself have a couple of telegraph instruments, with a large wire between them. We tried to use a ground, but we could not close the circuit. Our houses are only about 200 feet apart, and we had 4 cups of battery. I then bought enough of No. 18 copper wire for another main wire; and it worked splendidly and has never troubled us since. At what distance will a certain number of cups close a ground? At what distance will they close a double wire circuit? A. Different substances conduct electricity with more or less freedom, according to their composition. Dry earth conducts very poorly. It is the moisture in the earth which gives it most of its conductive capacity, but water itself is many million times a poorer conductor than copper; hence, in order to conduct as well as a copper wire, the volume of water must be many million times as great as the wire. If the two ends of your wire had been soldered to a water pipe which was buried for a considerable distance in wet earth, it would have worked; or if you had buried copper plates twelve feet square in wet earth at each end of your line, and attached the ends of your wire to them, it would have served your purpose. The cheapest plan for you, however, was to run another wire, and make a metallic circuit.

(31) J. N. G. asks: How many Callaud cells would be required to work three relays on a small copper wire of half a mile long, wire No. 17? A. Four.

(32) E. A. F. T. asks: 1. Will an engine, 1 1/2 inches bore x 3 inches stroke, with a conical boiler 18 inches high and 8 inches across at top, and 12 inches at bottom, of 1/2 inch iron, be large enough to run a 6 inch swinging lathe for ordinary work, or an 18 inch grindstone? A. Yes. 2. Could

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...

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...

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...

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...

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...

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 rules for walking canes? Why do not makers of small engines (3x8 inches cylinders, and less) advertise in the SCIENTIFIC AMERICAN?"

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 Alarm, electric fire, M. G. Farmer (r). 6,244 Alarm, burglar, A. C. Taylor. 158,873 Alarm, electro-magnetic, R. J. Brittain. 158,897 Auger, cotton, A. O. Schultz. 158,985 Auger, earth, Davis and Mills. 158,919 Baby tender, E. Post. 158,977 Bag holder, U. E. Lemon. 158,849 Bale tie, Filin and Wier. 158,836 Bales, hay and other, L. Dodge (r). 6,243 Barrel, R. W. Baylor. 158,777 Barrels, coating for oil, M. W. Quick. 158,978 Bath attachment, T. D. Woolsey. 158,877 Bath. electro-therapeutic, Becker & Hoffman. 158,890 Bedstead, invalid, Cosby and McGovern. 158,913 Bedstead, toilet stand, Schwartz and Wood. 158,986 Bee hive, A. B. Bowen. 158,826 Binder, temporary, Guicheteau and Perin. 158,839 Blacking, waterproof liquid, E. Clark. 158,907 Blanket, horse, G. V. Shepard. 158,990 Boiler for heating, E. and W. B. Mayer. 158,854 Bolt bearing, King, G. J. Orr. 158,971 Boom, sheer, W. B. Culbertson. 158,917 Boot crimping machine, Farnsworth & Barrett. 158,759 Boot crimping machinery, L. H. Farnsworth. 158,788 Boot heels, forming rands for, T. Bullock. 158,901 Boot soles, flanging, F. D. Ballou. 158,882 Boot jack, H. N. Conklin. 158,911 Boring machine, Z. C. Phillips. 158,809 Bread slicer, W. A. Brown. 158,827 Brick laying machine, C. Franke. 158,888 Bridle, W. S. Mitchell. 158,857 Brush, C. A. Hussey. 158,943 Buckle, T. L. Wiswell. 158,009 Burner, argand gas, T. Clough. 158,832 Butter worker, J. Thompson. 158,900 Butter worker, Yaw and Mitchell. 158,820 Calculator, mechanical, H. B. Martin. 158,853 Calf weaner, W. Sutton. 158,814 Can and measure, fluid, G. W. Aldrich. 158,773 Cane juice, treating, F. Randon. 158,979 Canvas stretcher, Wight and Gardner. 159,012 Car brake, air and steam, J. M. Connel. 158,912 Car coupling, C. Billmeyer. 158,892 Car coupling, A. Coulter. 158,915 Car coupling, W. O. Gunkel. 158,935 Car coupling, J. J. Lahaye. 158,948 Car coupling, S. 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Wolfington. 158,817 Harvester, T. P. Benton. 158,825 Harvester, G. H. Clark. 158,908 Harvester, clover, C. R. Hardy. 158,795 Harvester guards, swaging, J. H. Steberling. 158,810 Harvester, hemp, W. F. Cochrane. 158,909 Heater, car, T. W. Tyler. 159,002 Hinge, gate, S. L. Seiden. 158,987 Hog trap, P. Lane. 158,950 Hogs, watering tank for, G. A. Carter. 158,905 Hoisting apparatus, Opperman and Black. 158,970 Hoisting apparatus, Pfantz and Sternberger. 158,976 Horse blanket or lap robe, G. V. Shepard. 158,990 Horse detacher, P. Arnold. 158,774 Horse power, T. G. Palmer. 158,806 Horse power, mounted, F. D. Coy. 158,784 Horseshoe machine, F. Supple. 158,871 Horseshoe machine, J. Williams. 159,005 Indicator, station, J. W. Bryan. 158,900 Indicator, station, F. G. Johnson. 158,798 Insulating compound, I. Smith. 158,868 Iron beam, compound, W. S. Sampson. 158,983 Ironing board, A. Iske. 158,844 Kindling material, W. S. Tisdale. 159,001 Knife, shoe, A. L. 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- 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. Shepard 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.—CRIGARS.—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 (3 1/2 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 Champlon 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. K. 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, Lancashire 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, Manufacturer, 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, Elizabethtown, 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. C. Cattanauch, Providence, Providence county, R. I., U. S. Improvements on treating oil for paints, called "Cattanauch'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, 1873. 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.

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