

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Marine Iron Works. Chicago. Catalogue free. For logging engines. J. S. Mundy, Newark, N. J. "U. S." Metal Polish. Indianapolis. Samples free. Gasoline Brazing Forge, Turner Brass Works. Chicago. Yankee Notions. Waterbury Button Co., Waterbury, Ct. Handle & Spoke Mch. Ober Lathe Co., Chagrin Falls, O. Machine Work of every description. Jobbing and repairing. The Garvin Machine Co., 141 Varick St., N. Y. "Criterion" Acetylene Generators, Magic Lanterns & accessories. J. B. Colt & Co., Dept. N., 3-7 W. 29th St., N. Y. The celebrated "Hornaby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York. The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y. Send for new and complete catalogue of Scientific and other books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(7681) H. J. T. C. M. W. and others who desire information in regard to the extermination of dandelions and other weeds in lawns. We have referred this matter to the Department of Agriculture, and the following answer is given by Lyster H. Dewey, Assistant of the Division of Botany, Department of Agriculture. A. Where perennial weeds, such as dandelion, lance-leaved plantain, and yellow dock, are scattered through lawns, probably the most economical method for destroying them is repeated spudding, that is, cutting them off about two inches below the surface of the ground with a spud. Spuds may be obtained from hardware dealers, or a cheap and efficient spud may be made by mounting a one inch chisel in a hoe handle. Another method for destroying weeds of this character is to treat them with crude carbolic or sulphuric acid, the acid being applied with a machine oil can with a spout about 2 1/2 inches long so that the operator does not have to stoop to place the acid in the middle of the rosette of leaves. About 5 drops of crude sulphuric acid or a half a teaspoonful of crude carbolic acid will be sufficient to kill a dandelion or plantain. Where the soil is not alkaline the dose can probably be made smaller than this. For annual plants such as peppergrass, speedwell, chickweed, and shepherd's purse, there is no satisfactory remedy except pulling them up or hoeing them out, putting in new seed or sod. Care should be taken to prevent annual weeds from going to seed in and around lawns. In all cases where weeds are removed by any method, efforts should be made to encourage the growth of grass so as to prevent the further growth of weeds. The land should be kept enriched and seeds sown in all bare places. Extreme care should be exercised to have the lawn grass seed free from weed seeds. It is generally best to sow only one kind of lawn grass, as the mixed lawn grass seeds are much more likely to contain weed seeds. Furthermore a lawn composed entirely of one kind of grass makes a much prettier sward than one composed of several kinds.

(7682) F. J. H. writes: I understand that the atomic particles of a gas tend to get away from each other. What bearing has this on the definition and universality of the law of gravitation? A. Your conception that "atomic particles try to get away from each other" is somewhat at fault. They have no inherent tendency to do so. The tendency is an impressed tendency, and heat is the cause of the tendency. The hypothesis is that the particles of a gas are in constant motion and are colliding with each other, after which they rebound and move away in another line till they strike a second particle or the wall of the containing vessel, etc., ad infn. Take away all heat, and this motion would cease. No connection between this and gravitation has been shown.

(7683) M. N. W. asks: In telephonic communication is it the machine and not the actual voice that is heard? Or is it not the voice itself that is heard through the medium of the machine? A. In telephonic communication, the sound waves produced by the voice of the speaker cause the diaphragm of the transmitter to vibrate. These vibrations have the same period as the waves of the voice. The vibrations of the diaphragm cause the electric current through the line to vary in the same periods. The variation of the electric current sets the diaphragm of the receiver into vibration, and this vibration is received by the ear of the listener as sound. The voice is not transmitted. A current of electricity is transmitted through the line. A voice could not be heard from Chicago to New York. It is, however, very wonderful that the vibrations of the diaphragm of the receiver reproduce the qualities of the voice of the person speaking so perfectly that the person can be recognized by the reproduced tones.

NEW BOOKS ETC.

WRIGHT'S AUSTRALASIAN, INDIA, CHINESE, JAPAN TRADE DIRECTORY AND GAZETTEER, INCLUDING CANADA, SOUTHERN AND CENTRAL AMERICA, MEXICO, WEST INDIES AND SOUTH AFRICA. Fifth Edition. New York: George Wright, 121 William Street, 1899. Pp. 3579. 8vo. Price \$10.

A business directory is always an important book of reference, and the volume before us, in many respects, the most remarkable business directory of any we have seen. Some idea of the enormous size of the book, and the labor necessary in compiling it, may be gained from the fact that it contains 3579 pages. The various sections are printed on different colored paper, rendering a search for any desired country easy. The trades are classified under each city and town, and it will be found to have a great advantage over even local directories. The book is one which will prove very useful to all who are in any way engaged in buying and selling in foreign countries. It is a most admirable book and one which we can confidently recommend.

NOTICE SUR LE PROCÉDÉ DE M. CHARLES JANET POUR SE RENDRE INSUBMERSIBLE EN MER. Beauvais. Author's Edition. 1898.

ETUDES SUR LES FOURMIS, LES GUÊPES ET LES ABELLES. Note 13. Sur le Lasius Mixtus, l'Antenophorus Uhlmanni, etc. Limoges. 1897.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending JUNE 30, 1899. AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with patent numbers and names of inventors. Includes items like Acid chromate of lead, Air and gas engine, Air brake safety joint, Alarm, Amalgam washing chamber, etc.

Advertisements.

ORDINARY RATES.

Inside Page, each insertion, - 75 cents a line Back Page, each insertion, - \$1.00 a line For some classes of Advertisements, Special and Higher rates are required. The above are charges per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may be had advertisements at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

Star Footpower Lathes Automatic Cross feed 9 and 11-Inch Swing. New and Original Features. Send for Catalogue B. Seneca Falls Mfg. Company, 695 Water St., Seneca Falls, N. Y.

POWER & FOOT LATHES SHAPERS, PLANERS, DRILLS MACHINE SHOP OUTFITS, TOOLS AND SUPPLIES. CATALOGUE FREE. SEBASTIAN LATHÉ CO., 120 CULVERT ST., CINCINNATI, O.

Foot Power and TURRET LATHES, Planers, Shapers, and Drill Presses. SHEPARD LATHÉ CO., 133 W. 2d St., Cincinnati, O.

Walworth's Solid Die Plate Standard. Price List on application to WALWORTH MFG. CO., 20 Oliver St., BOSTON, MASS.

HIGH GRADE WOOD WORKING MACHINERY Single Machines or Complete Equipments for Any Class of Work. Your Correspondence is Solicited. Illustrated Matter and Prices on application. J. A. FAY & CO., 10-30 John St., CINCINNATI, OHIO

BARNES' UPRIGHT DRILLS Complete line, ranging from Light Friction Disk Drill to 42" Back Geared Self-Feed. Send for New Catalogue. W. F. & JOHN BARNES CO., 1999 Ruby Street, ROCKFORD, ILL.

Automatic Machines FOR FORMING WIRE from coil into shapes similar to cuts. We can furnish machines or goods, as desired. Send for Circulars. BLAKE & JOHNSON, WATERBURY, CONN. P. O. Box 7.

Table listing inventions with patent numbers and names of inventors. Includes items like Bed bottom spring machine, Bed removing machine, Beet pulp drier, Bicycle, Bicycle fastener, Bicycle handle bar, Bicycle propelling mechanism, Bicycle propulsion, Bicycle saddle support, Bicycle wheel, Binder, order blank, Blackboard, Boiler, Bolster, Boot or shoe flies, holder for, Bottle, non-refillable, Bottling rack, Box, See Hutter box, Card receiving box, File box, Folding box, Box or package, D. P. Sherman, Bracket, See Shade roller bracket, Brick and making same, fire, A. C. Ponton, Briquets, apparatus for making, F. J. Muller, Brush, J. J. Howe, Brush, electric hair, A. H. Burnard, Bucket, dumping, J. F. O'Rourke, Buckle, buck band, J. W. Kirkman, Bugzy Jack, C. D. Bowles, Ruggy top, A. Tesch, Burglar alarm, C. Johnson, Hydrocarbon burner, Burner, See Gas burner, Hydrocarbon burner, Butter box, export, Hart & Bradwell, Button or fastener, C. H. Goodwin, Calendar, perpetual, E. Sorenson, Can cover, oil, M. B. Lloyd, Caning machine, W. L. Lyon, Car annunciator, street, E. C. Bates, Car coupling, I. Beese, Car coupling, M. J. Clark, Car coupling, W. K. Kight, Car coupling, J. B. Thomas, Car roof, handle bar, J. T. Fenton, Car side bearing, railway, W. W. Woolf, Cars, electric lighting system for, J. L. Creveling, Car punching machine, Jacquard, J. A. Groebli, Card receiving box, F. D. Belknap, Carpet stretcher and tacker, C. P. Knapp, Carring driving mechanism, motor, W. E. Twichell, Carrier, See Luggage carrier, Cart, hand, E. K. Hayes, Case, See Electric cell packing case, Cash register, J. S. Crane, Cash register, Fauvel & Collins, Caster, M. Fisher, Chopping knife, G. W. Lawbaugh, Churn, J. W. Strabala, Cigarette cutting machine, R. Legg, Circuit interrupters, cooling jacket for vacuum, D. M. Moore, Cistern, filtering, Tulloh & Archer, Cithern, J. Bernolak, Clip, See Saddle clip, Tag holding clip, Cloth shearing machine, M. La Fountain, Jr., Clothes wringer, H. U. Ackerman, Clove or nut peelers, recleaning attachment for, F. Bender, Clutch, Allen & Moreau, Clutch couplings, device for uncoupling, T. H. Hatton, Cock having igniting tube, gas, J. F. C. Jurgens, Cog in mortise wheels, tool for marking, J. N. Grove, Coin controlled holding and locking device, W. T. Summers, Collodion, making caustic, A. Camnitzer, Comb cutting machine, G. S. Walker, Compound engine, W. H. Johnson, Controller, T. Von Zweigbergk, Conveyor or elevator, endless, G. C. Getchell, Copper by means of electrolysis, producing basic phosphate of, C. Luckow, Copy holder, J. H. McBride, Cornstalk cutter, three row, Wilson Ven., Coupling, See Car coupling, Thill coupling, Two-way pivotal coupling, Crate, collapsible poultry, J. A. Stauffer, Cultivator, F. Gross, Cupboard catch, E. B. Mallory, Currycomb, C. Heany, Cutter, See Cornstalk cutter, Strapping engine, Cycle handle bar, A. W. Waters, Dam or revetment, G. S. Zanetti, Damper, stovepipe, D. B. Tibbetts, Dandy roll wiping device, internal, Moran & Herdon, Darning apparatus, H. C. Hamann, Delivery apparatus, coin controlled package, J. H. Volkman, Digger, See Potato digger, Display card, B. Cohn, Dough working and shaping machine, W. S. & C. Corby (reissue), 11,751, Drier, See Beet pulp drier, Educational appliance, A. W. Thomson, Electric cell packing case, M. E. Fuld, Electric light handle and adjuster, F. H. Stewart, Electric motor, A. Hinman, Electric motors, means for lubricating, N. A. Christensen, Electric relay, H. B. Taylor, Electric transformer, G. A. Scheffer, Electric waves or vibrations, generating, D. M. Moore, Electricity for cars, etc., generating, J. Wayland, Elevator cage escape, Haines & Creighton, Elevator dump, P. H. Graves, Engine, See Air and gas engine, Compound engine, Gas engine, Hydraulic engine, Rotary engine, Steam engine, Traction engine, Engines, fluid feeder or regulator for explosive, A. Winton, Envelop and letter sheet and coin carrier combined, reversible, E. Duden, Etching metal plates, L. E. Levy, Etching soap, J. E. Brown, Extension table, W. T. Temple, Eyeglass holder, C. Roe, Eyeglass or spectacle attachment, J. Currin, Eyeglasses, L. E. Kerstein, Eyeletting machine, gang, G. Knight, Feed trough, J. W. Schneider, Feed water heater, A. Hillman, Feed water heater and purifier, C. H. Miller, Feed water heater and purifier, T. Willebrand, Fence stay wires, device for attaching wire, W. J. Jacobs, Fender, See Hearth fender, File box, V. Hemstreet, File, letter, W. Shyvers, Fire escape, W. Benbow, Fire escape, G. S. McGee, Fire extinguishers, strut for automatic, J. L. Butler, Fish book, J. D. Drees, Fish or bait, artificial, T. Maroney, Flower pot, G. H. Hinrichs, Fly trap, A. B. Forrest, Folding box, C. G. Ingersoll, Frog, spring, C. Parlington, Fruit grader, Cunningham & Barnum, Furnace, See Roasting or drying furnace, Smoke consuming furnace, Furnace protecting device, J. S. Unzer, Fusee thrower and guide, G. B. Howard, Garment fastener, G. Habicht, Gas burner, W. A. Armington, Gas cut off, automatic, V. E. Campbell, Gas engine, L. S. Kirker, Gas generating and burning device, acetylene A. Browet, Gas generator, acetylene, F. M. Draper, Gas generator, acetylene, F. E. & H. W. Lunn, Gas generator, acetylene, J. E. A. V. Pourcelle, Gas lighting apparatus, Farquharson & Root, Gas meter, prepayment, J. H. Bishop, Gear cutting machine, C. D. Rice, Generator, See Gas generator, Glass cylinders while being cut, machine for holding, C. E. Ball, Glass pipe, apparatus for making, J. W. Bonta, Glass pipe, process of and apparatus for manufacturing, J. W. Bonta, Glaing frame, O. E. Winger, Governor, V. E. Hunter, Governor, engine, A. S. F. Robinson, Grain drill register, W. Bills, Gum for varnishes, etc., E. M. Beck, Gums for varnishes, etc., manufacturing, E. M. Beck, Hammer operating means, drop, F. A. Pratt, Hammer operating mechanism, drop, F. A. Pratt, Hand bag, J. D. Wood, Harbor or coast defense, A. Van Bibber, Harness, J. C. B. Harned, Harness attachment, J. H. Hart, Harrow frame, L. G. Helmbold, Harvester grain adjusting apron, W. L. Selteck, Harvester, kadr corn, T. H. Deeter.

(Continued on page 14)

WILLIAMS' SHAVING SOAPS AMERICA'S PRIDE. Williams' Shaving Stick, 25 cents. Genuine Yankee Shaving Soap, 10 cents. Luxury Shaving Tablet, 25 cents. Williams' Shaving Soap (Barbers'), Six Round Cakes, 1 lb., 40 cents. Exquisite also for toilet. Trial cake for ac. stamp. The J. B. WILLIAMS CO., Glastonbury, Conn. LONDON: 64 GREAT RUSSELL ST., W.C. SYDNEY: 161 CLARENCE ST.

Just a Little Valve, Just a Little Turn, Just a Little Drizzle, and Then the Coal will Burn. The open valve means a big loss of steam. The loss is the same, no matter whether its ignorance or carelessness. May be you think you're too busy for these little economies, but are you? We know of cases where the Heintz Steam Trap has increased the power and heating capacity of the whole plant 40%—isn't that worth investigation? Our booklet, Vol. "H" for you—will interest every steam user, big and little. Of course it's free—a postal will do. WM. S. HAINES COMPANY, 136 So. Fourth St., Philadelphia, Pa. FARSON MFG. CO., Chester, Pa., say: A few days after we put the No. 2 Heintz Trap on our dry kiln run by live steam, we made a very accurate test and found a saving of fuel in a 10 1/2 hours' run of \$1.51.

WELL DRILLING Machines. Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on sills. With engines or horse power. Strong, simple and durable. Any mechanic can operate them easily. Send for catalog. WILLIAMS BROS., Ithaca, N. Y.

DON'T MIX PAINT. If you're mixing your own materials for machinery painting, you're not saving anything on labor, and the chances are that you are losing on dried-up material. If you're not too well satisfied with old methods, or too conservative, send for our booklet on Pecora Flat Steel Color. PECORA PAINT CO., PHILADELPHIA. You would use Pecora Blow Hole Cement if you read our circular. 119-7.

SUB-PRESS PUNCHES AND DIES. We make to order to drawings or models blanking, shaving and swaging dies, either simple or compound, for work requiring accuracy and finish. Sub-Press Dies for the parts of watches, clocks, cyclometers, and other small mechanisms a specialty. We carry in stock different sizes of Sub-Press Bases and Stands. Send for Descriptive Circular. THE PRATT & WHITNEY CO., Hartford, Conn., U. S. A.