

**Business and Personal.**

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

Who will manufacture or buy a new Patent Fishing Spear? Address J. W. Knapp, Cross River, Westchester County, N. Y.

Wanted—General Agency for small patent articles. J. D. Nesbitt, Foxboro, Mass.

Wanted—100,000 of Davis' Hay and Cotton Presses made on royalty. Address O. A. Davis, Ashland, Oregon.

Wanted—Circulars and Price Lists from Makers of Air Heaters suitable for Churches. Address Drawer 24, Guelph, Ont.

For Sale—One N. H. Baldwin's Foot Lathes, back geared and screw cutting, 10 in. swing, 42 in. between centers. Address Wm. E. Lewis, Cleveland, Ohio.

Walrus Leather, tanned, for polishing all kind of Metals. Greene, Tweed & Co., 18 Park Place, N. Y.

Babbitt Metals—For the best, send to Conrad & Murray, Iron and Brass Founders, 30th & Chestnut Sts., Philadelphia, Pa.

Chromo Printing is very extensively carried on in Cincinnati by Strobridge & Co. Their work is largely used by publishers all over the country, and is of superior execution.

Bones Wanted for Manure (Cash). Write Spratt, 54 Knowle Road, London, England.

Just Patented and for Sale—"U. S." or State rights for James Codville's Seeder and Fertilizer. Sows 10 times more than any other; is strong, simple, elegant, durable, and cheap. Address James Codville, Woodstock, Ontario, Canada.

Bread Dough Mixer Wanted. Address M., care Mr. Wadding, No. 22 Forsyth St., New York.

Tingue, House & Co., 69 Duane St., N. Y. Manufacturers of Machine Blanketing, Felts, and Cloths, Endless or in piece, for Printers, Engravers, Polishers, Plano Forte Makers, Paper Makers, Calico Printers, Punching or Washer Cloth, Filter and Strainer Cloths for all kinds of liquids. Sample sent on application.

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

To Manufacturers and Amateurs—Solutions for covering all kinds of metals with different metal, either by Electro Plating or chemical process, always on hand, with reliable direction for use. Address Alb. Lovie, 222 N. 4th St., Philadelphia, Pa.

Wanted—Address of Lamp Burner Manufacturers. Milton Church, Pittsburgh, Pa.

The Patentee of the U. S. Patent Autographic Safety Incisions for prevention of alteration of Checks, Drafts, Notes, Due bills, &c., is desirous of a party with Capital to introduce the same. Full preparations already made for the Manufacture of the Instruments. Address E. J. Fischer, 513 N. 10th St., Phila., Pa.

Matson's Combination Governor—Will absolutely govern any Engine. Also admits a constant stream of oil into the cylinder. Sold under full guarantee. Address Matson Bros., Moline, Ill.

Double-Acting Bucket Plunger Steam Pumps, Manufactured by Valley Machine Co., Easthampton, Mass. N. Y. Store, 45 Cortlandt St.; Phila. Store, 132 N. 3rd St.

Portable Engines, new and rebuilt 2d hand, a specialty. Engines, Boilers, Pumps, and Machinist's Tools. L. H. Shearman, 45 Cortlandt St., New York.

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

Saws made & repaired at 108 Hester St., N. Y.

Inventors can get small plates of sheet steel very cheap, at the saw factory, 108 Hester St., New York.

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 \$5. F. C. Beach & Co., 263 Broadway, New York, Makers. Send for free illustrated Catalogue.

The Improved Hoadley Cut-off Engine—The Cheapest, Best, and Most Economical steam-power in the United States. Send for circular. W. L. Chase & Co., 95 & 97 Liberty St., New York.

Telegraph Inst's. M. A. Buell, Cleveland, O.

Vertical Tubular Boilers—all sizes. Send for Price List. Lovegrove & Co., Philadelphia, Pa.

Compound Propeller Pumps, for Mines, Quarries, Canals, and Irrigating purposes. Circulars on application to Hydrostatic and Hydraulic Company, 913 Ridge Avenue, Philadelphia, Pa.

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

For Sale—Two Steam Saw Mills and three Farms, by C. Bridgman, St. Cloud, Minn.

Deane's Patent Steam Pump—for all purposes—Strictly first class and reliable. Send for circular. W. L. Chase & Co., 95 & 97 Liberty St., New York.

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

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

Dickinson's Patent Shaped Diamond Carbon Points and adjustable holder for working Stone, dressing Emery Wheels, Grinding Stones, &c., 64 Nassau St., N. Y.

The Pickering Governor, Portland, Conn.

Portable Engines 2d hand, thoroughly overhauled, at 1/2 Cost. L. H. Shearman, 45 Cortlandt St., N. Y.

Mechanical Expert in Patent Cases. T. D. Stetson, 28 Murray St., New York.

Gas and Water Pipe, Wrought Iron. Send for price list to Bailey, Farrell & Co., Pittsburgh, Pa.

Forges—(Fan Blast), Portable and Stationary. Keystone Portable Forge Co., Philadelphia, Pa.

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

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

Lathes, Planers, Drills, Milling and Index Machines. Geo. S. Lincoln & Co., Hartford, Conn.

Hydraulic Presses and Jacks, new and second hand. E. Lyon, 470 Grand Street, New York.

Engines, Boilers, Pumps, Portable Engines Machinist's Tools. L. H. Shearman, 45 Cortlandt St., N. Y.

Price only three dollars—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.

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

Makers of Hub and Spoke Machinery, address Box 152, Pembroke P. O., County Renfrew, Canada. Peck's Patent Drop Press. For circulars, address Milo, Peck & Co., New Haven, Conn.

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

The French Files of Limet & Co. are pronounced superior to all other brands by all who use them. Decided excellence and moderate cost have made these goods popular. Homer Foot & Co., Sole Agents for America, 20 Platt Street, New York.

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

Automatic Wire Rope R. R. conveys Coal Ore, &c., without Trestle Work. No. 34 Dey street, N. Y.

A. F. Havens Lights Towns, Factories, Hotels, and Dwellings with Gas. 34 Dey street, New York.

Temples & Oilcans. Draper, Hopedale, Mass.

Best Philadelphia Oak Belting and Monitor stitched. G. W. Army, Manufacturer, 301 & 303 Cherry St., Philadelphia, Pa. Send for free circular.

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.

Rue's "Little Giant" Injectors, Cheapest and Best Boiler Feeder in the market. W. L. Chase & Co., 95 & 97 Liberty Street, New York.

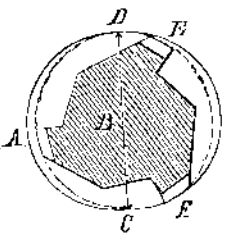
For Surface Planers, small size, and for Box Corner Grooving Machines, send to A. Davis, Lowell, Mass.

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

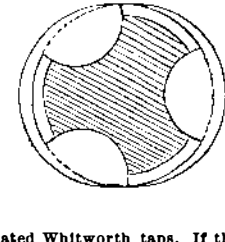


J. G. H. can keep his cistern water fresh by the means described by M. A. G. on p. 156 of our current volume.—J. P.'s mineral specimen has not reached us.—J. H.C.'s query as to an amalgam is not intelligible.—F. H. F. will find a description of the Wilson process of making steel direct from the ore on p. 35, vol. 30.—C. A. B. does not send sufficient data as to calculating the power of a locomotive engine.—C. will find directions for waterproofing cloth with rubber varnish on p. 282, vol. 29.—A. H. Y. will find directions for making nickel salts on p. 137, vol. 28.—C. P. H. will find a full description of the first locomotive in Smiles' "Life of George Stephenson."—J. C. T.'s wife will find a description of painting on glass on p. 123, vol. 30.—F. G. will find a recipe for liquid glue on p. 250, vol. 30, and an explanation of the pressure of the wind on p. 378 vol. 30.—X. X. X. will find directions for polishing meerschaum on p. 155, vol. 31.—S. H. S. should consult a soap boiler.—N. G. N. should apply to D. Van Nostrand for Auchincloss' book on "Link and Valve Motions."—W. N. can galvanize castings by the process described on p. 59, vol. 24.—C. D. E. can kill ants by the means described on p. 234, vol. 27.

(1) A correspondent says: I have read with much interest the very able articles on "Practical Mechanism," written for your valuable paper by Mr. Rose; and find that they contain much information, useful not only to apprentices but also to men who have worked for years at their trade. But I beg leave to differ from Mr. Rose on some points of the article published under date of August 15, in which he says: "The only clearance necessary is to ease off the top of the teeth backwards from the cutting edge, which will give the teeth sufficient clearance to make them cut clean, and leave the sides of the thread to fit the thread being cut." I maintain that it is necessary to have clearance on the top, bottom, and sides of the teeth of a tap, in order to make it cut freely; otherwise it will jam its way through instead of cutting. I think that all practical machinists, who have used taps with clearance only on the top of the teeth, as proposed by Mr. Rose, especially for tapping steel, will agree with me on this point; such taps require as much power to turn them back as to force them in, and will frequently snap off in the hole. In another part of the article, Mr. Rose says: "Three flutes are all that are necessary or small taps, which leave the top stronger and less liable to wobble, especially in holes that are not round, than if it had four flutes. Taps of a larger size may have more flutes, but the number should always be an odd one, so that the tap may do its work steadily." My experience has been that, for a hole not round, a tap with four or more flutes is better than one with three. The engraving



represents the outline of a hole not a true circle. B is a section of a tap with three flutes. When in the position shown, the point, A, does not touch, and the diameter of the hole being greater across C D than where the other two flutes, E, F, of the tap are cutting, the tap will be forced back until the point, A, touches, and each tooth in succession, as it comes around, will drop into the same place; thus the tap will follow the irregularities of the hole. A spiral form of flute is the best. A. Taps will cut freely and clean without having clearance on the sides or bottom of the thread, as evidenced



in the celebrated Whitworth taps. If the teeth have clearance on the sides, the cuttings are apt to jam the top in turning it back. Again, a tap without clearance will back out as easily as is compatible with a closely fitting thread. A tap with three flutes only has more of the circumference of the thread guiding it in the hole, and hence is steadier in using and less liable to wobble or to follow any inequalities in the configuration of the hole. A spiral form of flute is difficult and expensive to cut, and must be sharpened by hand instead of by the much more rapid and desirable method of the emery wheel.

(2) F. C. M. asks: What difference is there in the nature of the power disengaged by the action of dilute acid on the metallic plates, as in a cell battery, and that evolved by the friction machine commonly used for medical purposes? A. There is still much uncertainty as to the real effects of electricity on the human system, the cases in which it is to be applied, and the best mode of applying it. Practical men prefer the use of currents to that of static electricity, and, except in a few cases, they prefer discontinuous to continuous currents. There is, finally, a choice between the current of the battery and that of induction. Electrical currents should not be applied in therapeutics without a thorough knowledge of their various properties. They ought to be used with great prudence, for their continued action may produce serious accidents. Matteucci, in his lectures on the physical phenomena of living bodies, expresses himself as follows: "In commencing, a feeble current must always be used. This precaution now seems to me the more important, as I did not think it so before seeing a paralytic person seized with almost tetanic convulsions under the action of a current from a single element. Take care not to continue the application too long, especially if the current is energetic. Rather apply a frequently interrupted current than a continuous one, especially if it be strong; but after 20 or 30 shocks at most, let the patient take a few moments' rest."

(3) G. R. McC. asks: Is there any simple method by which glass and china ware may be marked with a name or initials? A. Glass ware may be indelibly marked by means of a diamond, or very hard steel.

(4) W. H. M. asks: What is the meaning of cold pressed castor oil? A. Castor oil is made by pressing the castor oil bean in a cold or warm state. When pressed cold, it is called cold pressed castor oil.

What work on chemistry do you consider the best? A. If you desire an elementary work, we would recommend Bridge's edition of Fowne's "Elementary Chemistry." A more advanced work is Miller's "Elements of Chemistry."

(5) C. O. D. asks: 1. How can I keep the head of a banjo from becoming dry and wrinkled? With what can I clean the fly dirt off without injuring the head? A. Try a small quantity of powdered rosin. 2. Does it damage the strings to always keep them in tuning order, and to leave the bridge always in a standing condition? A. Yes.

How can I remove flesh worms from the face? A. Bathing the face with bay rum has been recommended, but perhaps the better recipe would be to abstain from imtemperate diet and eat only plain food.

(6) I. I. Y. asks: 1. What can I use to harden butter in summer instead of ice? A. Numerous devices for the production of a low degree of temperature by artificial means have been fully described in the SCIENTIFIC AMERICAN, many of which might be made applicable to your purpose. 2. What can I use to color butter yellow? A. Butter is often artificially colored by aid of annatto, turmeric, or infusion of calendula flowers.

(7) C. H. M. says: You stated recently that the artificial employment of electricity would aid, sometimes induce, and accelerate the crystallization of substances. Please explain, more specifically, under what arrangement or circumstances this is the case, and to what extent. A. Every metal is thrown down in a crystalline state, when there is no evolution of gas from the negative plate, and no tendency thereto.

(8) S. H. G. asks: Do the born blind ever "see stars," resulting from a blow or strain? Pressure with the thumb and finger on the closed eyelids can be made to produce sensations of color. These tints, in certain conditions of the nervous system, are exquisitely beautiful, and have no connection with the memory. They are simply colored pictures evolved out of the darkness by mechanical pressure upon the ball of the eye. Are the blind susceptible of this? If so, they may have ideas of color without having ever seen a ray of light. A. Violent concussion will produce "stars" even in a blind person. You could obtain better answers to the remainder of your question by consulting a person devoid of sight, than from us.

Can the locust crop out west be utilized for stock, or otherwise? A square acre of solid living meat ought to be worth something in this age of the world. A. As far as we know, this has not yet been done.

(9) O. H. asks: Can you give me a recipe for making gelatin, such as is used in making molds for molding plaster of Paris? A. Gelatin is formed by the action of boiling water on white fibrous tissue, cellular tissue, the skin, organic constituents of bone, etc. When the solution is evaporated to dryness, it leaves the gelatin as a brownish yellow mass. Common glue is an impure form of gelatin, and is generally employed for making such molds as you speak of.

(10) H. asks: Does the color black attract heat? A. A black substance is one which absorbs all rays of light which fall on it, and converts them into heat, with a corresponding rise in temperature.

(11) F. H. asks: In a discussion on the advance of chemistry, I stated that one chemist had succeeded in making alcohol from its elements. On being asked what the substances used were, I named graphite, hydrogen, and oxygen. One gentleman objected and said graphite was not an element. I insisted it was. Is graphite an element in the sense in which I used it in the discussion? A. No. Graphite, though a form of carbon, is not pure C, as most specimens contain iron. Instead of graphite, you should have said carbon.

(12) A. D. B. says: I have a large barometer hanging on the wall; just under it, about 4 feet away, are the steam pipes which heat the room. As the barometer does not indicate rightly, can the steam pipes underneath have any influence on it? A. In all observations with barometers, whatever be their construction, a correction must be made for temperature. Mercury contracts and expands with different temperatures; hence its density changes, and consequently the barometric height, for this height is in the inverse ratio of the density of the mercury; so that, for different atmospheric pressures, the mercurial column might have the same height. Accordingly, in each observation, the height observed must be reduced to a determinate temperature the choice of this is quite arbitrary, but that of melting ice is always adopted. By the aid of tables, which have been prepared for this purpose, the height of the barometer is readily reduced to zero.

(13) H. W. says: I am told that a 1 inch belt running at 1,200 feet per minute will transmit one horse power. I am using a 4 inch belt. Am I using 4 horse power? A. There have been careful experiments made which show how much power a belt will transmit under average conditions; but it is difficult to say how much a belt does transmit, in any particular instance, without a test. See p. 257, vol. 23.

(14) E. B. asks: Does each point on the circumference of a wagon wheel, as it touches the ground, come to a perfect rest? A. Yes.

(15) T. A. J. says: In silver plating German silver spoons, the battery seems to work well; but when I come to burnish the spoons, the coating peels off. Can you tell me how to make a good job of it? A. Place the articles to be plated in strong lye water to remove all grease, and then for a moment in dilute sulphuric acid. Wash in clean water and place immediately in your bath. Care should be taken to handle the work as little as possible in placing it in the bath.

(16) C. H. M. says: We have a hand car worked by a perpendicular rod from a walking beam. Will the car run any easier with this power applied at the end near the perpendicular rod than at the other end? A. No.

(17) T. C. W. asks: Which is the coldest, ice 10 inches thick with snow on one side of it, or ice 26 inches thick, solid? A. The ice which is made from the coldest water will last the longest. 2. Does not lake ice frozen in or near Chicago last longer in a water cooler than ice frozen in Kentucky? A. Yes.

When water is boiling, can it be made hotter by having a heavy fire under it? A. No.

What is that liquid which barbers use in shampooing? A. Borax is commonly the principal ingredient of the compound.

Can a locomotive be constructed to run 75 miles an hour? A. It is doubtful whether the locomotive could be kept upon the track at such speed.

(18) F. D. B. asks: Can I make a miniature electric machine with a glass plate only 1 1/2 inches in diameter? Will it produce electric sparks in fifty (or less) rapid revolutions? A. If perfectly constructed, electrical action would undoubtedly take place, as in larger machines; but on so small a scale, we doubt much if any visible phenomena would occur. The presence of electricity might be determined by the use of a delicate electrometer.

(19) B. A. J. says: I have a wire connection between a water wheel and my house, which is 500 feet distant. Do the wires increase the danger of the house from lightning? A. Yes. You should have an extension from the wire into the ground, and the terminal should have an enlarged surface in the ground. As to your other question, try the experiment.

(20) H. H. asks: How are carbon cylinders or plates for galvanic batteries made? A. Powdered charcoal is put into a mold, then plunged into a concentrated solution of sugar, after which it is dried, and exposed to an intense heat in a covered vessel. As to your other queries, address a manufacturer.

(21) J. McC. says: I am running 4 hydraulic pumps, using lincseed oil for getting on the pressure. The diameter of plungers is 3/4 inch, with 5 1/2 inch stroke. Each pump has a receiving valve and check valve. The openings in pipes are 3/8 inch, with an average length of about 10 feet. Safety valve 1 lb., lever 2 lbs., with a weight on it 30 lbs.; distance of fulcrum 1 1/2 inches; distance from center of safety valve to where the 30 lbs. weight is fastened on, 3 1/2 inches. Opening under the safety valve, 3/8 inch. The hydraulic press cylinders are 1 1/2 inches in diameter. How many lbs. pressure does it take to raise the safety valve off its seat, so as to allow the oil to escape through an opening above the seat? How many lbs. pressure are there on the 1 1/2 inches press cylinder, and how many to the square inch when the pump raises the safety valve, loaded in the above way, off its bearing? A. You do not send quite enough data; but the pressure is about 2,500 lbs. per square inch when the valve is lifted.

(22) A. P. S. asks: What publication would be of the most use in helping me to run an engine? A. We do not know of any work that will aid you very much. You will find many useful hints in Bourne's "Catechism of the Steam Engine." We may add that a person who learns to run an engine by reading a book will have to learn it over again when it comes to the actual practice. At least, this is true in the present condition of the literature of the subject.

(23) J. H. G. says: I have a lead-lined tank, the seams of which are soldered and are corroding. Please tell me what kind of varnish to use to prevent this, and also to prevent injurious effects of lead in newly lined tanks. The varnish must be insoluble in water. A. Tinning will be the best resource.

(24) W. E. B. says: In your issue of August 29, in your answer to G. T. P., you give the following formula:  $A^2 = \frac{860a}{2P} R$  and  $C = \sqrt{2R^2 - 2R^2 \cos A}$ . In place of the latter, I think the following much more simple in practice:  $C = 2R \sin \frac{1}{2} A$ .

(25) W. M. K. says, in reply to B. H. S., who states that his steam pipe is 6 inches, and his connection from the boilers to the steam drum 3 inches in diameter: If you make your connections to the steam drum 6 inches, you will have no more trouble. It will equalize the pressure in the three boilers. [We believe that the best way to fix the boilers is as we have already indicated: Arrange them so that the water cannot be forced from one into the other.—EDS.]

(26) H. L. M. says, in answer to I. S. N., who asked how to straighten a rifle barrel: Take two pieces of hard wood, one about 30 inches long and thick enough to stand the pressure required. Take off about half an inch of the thickness in the middle, leaving it full on the ends. Put your rifle barrel with its hollow side against it. Then take the other piece of wood, 3 or 4 inches long and about 1/2 inch thick, and put it on the other (the round) side of the barrel, and then put the whole in a strong vise, and screw up till the barrel is straight.

(27) C. B. says, in answer to T. S. S. who asked as to wooden linings to locomotive drive wheel tyres: Locomotive drivers do sometimes have linings of wood beneath the tyres. According to a recent method the wheel is cast with a number of projections, like teeth, distributed at short and regular intervals on the periphery. Into the spaces between these teeth are driven blocks of wood somewhat thicker than the length of the teeth, and over these blocks the tyre is shrunk on.

(28) A. McC. says, in reply to G. W. S., who asks if there is any device for taking steam out of a boiler by a tube, and conveying it under the grates of the fireplace to keep the fire down when the engine is stopped: In some steam fire engines, a small tube from the upper part of the boiler conveys steam and discharges it over the top of the flues for the purpose of checking or extinguishing (as the case may be) the fire in the fire box.

(29) J. A. M. says: To soften the tone of a violin, string it up to the required pitch; take a small gum elastic band, and make it fast to one side of the violin

bridge; then stretch it over the strings close to the bridge, carrying it down to one of the notches on the other side, and make it fast there. The tension of this small band, being supported by the strings, produces almost the effect of the common mute, with the difference that the power of the tone is preserved in its full purity, while it seems that this small band absorbs all that harsh noise which is more the result of friction than any musical quality contained in the instrument. I have tried this effectually on all the different sizes of instruments, from the smallest down to the double bass, and I find that the effect is very pleasing, and would, I think, by good players on any of the instruments, be pronounced beautiful. The tone may be gradually diminished by the use of additional bands, without lessening its real purity.

(30) A. C. H. says, in reply to F., who asked if there were such a flower as the thousand dollar plant: There is a plant called the thousand gulden (not dollar) plant; it grows in Switzerland, and is used to a great extent in medicine. The botanical name is *Erythraea centaurium*. It has red or white flowers, and is about 1 or 2 feet high.

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

B. B.—It is iron pyrites, of no value.—S. R.—If you wish to know the value of an ore, you must send the ore, not the reduced metal. The specimens sent are reduced zinc.—H. V.—It is granular sulphide of iron.—W. H.—It is an iron ore, containing a large percentage of silica and sulphur, and a small percentage of manganese. It contains none of the precious metals.—R. W. B.—They are grasshoppers (Packard) or *caloptenus epretus*. Mr. Scudder states that a third (whether belonging to the same species or not, is still uncertain), has invaded at different times nearly all the country lying within the boundaries of the United States between the Rocky Mountains and the Pacific Ocean. The smallest one sent by you is probably the one referred to by Mr. Scudder.—J. W.—They are rings from the fossil stems of various species of crinoids.—I. H. S.—It is a hard sandstone, inclosing scales of sulphide of iron.—T. J. R.—No. 1 is a silicious rock, inclosing fine particles of iron pyrites. No. 2 is a small and regular crystal of quartz.—A. F. M. A.—The acorn-shaped mineral is a deposit of sulphide of iron. Your well water must contain a large percentage of iron.—A. J. H.—It is laumontite, or a hydrous silicate of alumina and lime.—C. H. W. & Co.—It is a very rich quality of iron pyrites.—D. R. B.—It is a coarse quartzose sandstone, utterly unfit for a fertilizer.—A. V. V.—Ten of your specimens are sulphurets of lead distributed through limestone. No. 11 is sulphuret of lead in quartz rock. No. 12 is iron pyrites in quartz rock.—J. W. S.—It is a special variety of white cast iron, known as spiegel-eisen. It is largely used in the manufacture of Bessemer steel.—A. H.—Magnetite is magnetic oxide of iron, of a certain crystalline form and chemical composition, containing, in the purest varieties, 72-4 per cent of metallic iron. We regret the loss of your specimens, but must again repeat, to you and other correspondents, that we report immediately on all minerals received by us.—We have received a blue plateboard box, 2x3 inches, without any label or name. It contains many small specimens of quartz rock, through which are disseminated specks of altered muscovite, of no practical use.

P. J. K. asks: What is the best method to destroy a lot of rats that infest my house?—G. U. F. asks: Who are the best writers on ventriloquism, explaining the art in full?—W. F. B. asks: Is there any way by which a person can tell his own breath is of a false?—A. B. asks: Can any one give me information concerning the history, past and present, of the children and grandchildren of Robert Burns, or his brother Gilbert?

COMMUNICATIONS RECEIVED.

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

- On Channeling the Bars of Rivers. By O. P. S.
On Locusts and Grasshoppers. By H. J. S.
On the Weight of the Atmosphere. By J. B. T.
On Sea Sickness. By W. M.
On Drawing a Parabola. By F. H. R.
On Making Copper Alloys. By A. E. O.
On Some New Galvanic Batteries. By L. B.
On a Discovery in Missouri. By C. I.
On Bees and Honey. By W. A. B.
On Practical Mechanism. By W. H.
On Small Engines. By N. T. W., and by N. G. N.
On the Locust Plague. By J. W.

Also enquiries and answers from the following:
W. H.—J. E. D.—H. V. M.—E. C. M.—J. N.—H. M.—H. F.—F. L.—W.—J. W. S.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given. Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given. Hundreds of enquiries analogous to the following are sent: "Please to inform me where I can buy sheet lead, and the price? Where can I purchase a good brick machine? Whose steam engine and boiler would you recommend? Which churn is considered the

best? Who makes the best mucilage? Where can I buy the best style of windmills?" All such personal enquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patent of the United States

WERE GRANTED IN THE WEEK ENDING

August 18, 1874,

AND EACH BEARING THAT DATE.

(Those marked (r) are reissued Patents.)

Table listing inventions with names and dates. Includes: Addressing machine, J. Blocher; Animal fat, treating, J. Hobbs; Axles, turning, W. E. Stevens; Bale tie, cotton, W. S. Davis; Bale tie, cotton, R. D. McIlwaine; Ballot box, Omensetter & Parker; Bed bottom, spring, W. H. Austin; Bed bottom, spring, Comstock & Lupton; Beefsteak tender, M. Trowbridge; Bell, door, E. B. Sims; Belt, W. Mullee; Belt coupling, adjustable, W. H. Roberts; Bleaching hemp, Sneed & Mount; Boiler attachment, wash, Henry & Dennis; Boilers, tube and fire for steam, J. H. Wilkinson; Boot heels, forming, E. Fisher; Boot soles, drying, J. T. Jeffers; Boots, making, Fearey & Chickering; Bottle, caster, C. P. Crossman; Bronzing machine, W. D. Cooke; Buckwheat scouring machine, J. Klaer; Burner, locomotive head light, S. M. Davies; Cap, H. Kuhlman; Caraxie box, J. S. Sanson; Car brake, C. Adams; Car coupling, B. Almonte; Car coupling, W. H. Darling; Car coupling, T. D. Gambrell; Cardoors, operating, A. C. Goodell, Jr.; Car mover, Lewis & Overton; Cap, safety passenger, J. T. Worley; Car shoe, safety, L. B. Stilson; Car, sleeping, J. Woodruff; Car track, C. J. N. Rebour; Car wheels, casting, Sax & Kear; Cars, pole coupling for street, W. Leaf; Carpet, measuring, T. M. Brintnall; Carpet stretcher, S. C. Calhoun; Carriage axle nut, E. W. Ives; Carriage spring, T. H. Wood; Cartridge primer, T. J. Powers; Case and sample box, H. Westphal; Chair, W. Gotorth; Chamber case, W. Hinman; Churn, K. Nolan; Churn, G. Shoup; Corn husking implement, Cavender & Dallis; Corn husking machine, E. Ellison; Corset, T. S. Gilbert; Culinary vessel, Neale & Booth; Culinary vessel, J. H. & N. Weare; Cultivator, C. Kinsey; Card worker, W. C. Smith; Curry comb, L. Sawyer; Digger, potato, J. M. Whitman; Disillation, treating grain for, A. Woolmer; Document stitchee, C. C. E. Van Alstine; Door check, F. Linsel; Dyes, treating anthracene, Rumpf et al.; Egg beater, D. D. Mackay; Egg carrier, J. L. Stevens; Elevator, J. B. Chynowith; Elevator, J. F. Marsh; Elevator, ice, R. R. Reynolds; Elevator, water, Reed & Blythe; Engine, rotary, A. Dietz; Engine, rotary, J. H. Teal; Engine, rotary steam, H. Boettcher; Engine, steam, J. W. Hayes; Eyeglass holder, A. Wild; Faucet, beer, L. Poh; Feather renovator, L. W. Powis; Fifth wheel, M. Christianson; Firearm hook, I. Merrill; Fish hooks, making, Court et al.; Fishing rods, spring attachment for, B. Hill; Fishway, J. D. Brewer; Food for infants, H. Hensch; Fork for plating hedges, H. Hollingsworth; Furnace, L. C. England; Gas apparatus, J. D. Patton; Gas process and apparatus, W. Elmer; Generating heat, Allen & Harris; Glass mold, J. Zihlman; Glassware mold, J. E. Miller; Governor, electro-magnetic, J. M. Bradford; Grain drill, P. Bostrom; Grain drills, feed roller for, J. H. Cook; Grate, L. M. Chiple; Grate, Lee & ParPer; Harness, A. McCracken; Harness pad, G. W. Vosburgh; Harrow, J. Wheeler; Harrow and seeder, R. McAdams; Harvester, A. R. Keese; Harvester cutter, B. C. Rockwell; Harvester rake, E. L. Hutchinson; Hatchways, closing, Spaulding & Tuttle; Hedge fork, H. Hollingsworth; Heeling machine receiver, W. F. Trowbridge; Hemp brake, Dulin & Burgan; Hops, preserving, T. A. Breithaupt; House, wooden, J. R. Perry; Hubs, core box for metallic, C. G. Allen; Hydrants, stop-valve for, S. H. Brown; Index, C. F. Thomas; Indicator, electro-magnetic station, C. W. White; Jack, lifting, B. Harrison; Kilo, brick, E. V. Wingard; Knife, butter, S. J. Chadwick; Lap board, J. E. Cotton; Lathe, wood turning, N. T. Melvin; Lathes, chuck for metal, J. H. Vinton; Leather-scouring machine, J. Head.

Table listing inventions with names and dates. Includes: Lime kiln, F. Strayer; Locomotive, T. B. Smith; Loom shuttle box, M. A. Furbush; Loom web stop, T. Isherwood et al.; Lubricating compound, Eggleston & Rich; Lumber, etc., drying, G. Woods; Marble, imitation, J. H. Wright; Measuring machine, carpet, T. M. Brintnall; Mill and press combined, cider, S. M. Firey; Millstone dress, J. D. Mines; Millstone friction gear, C. J. Shuttleworth; Mitering machine, E. Everett; Motion, preventing back, J. H. Race; Mowing machine, J. H. Elward; Nail-driving machine, H. Dunham; Nail extractor, G. J. Capewell; Neck tie box, S. Orth; Paper barrels, making, J. L. Thomson; Paper box, F. D. Stone; Paper stock, G. B. Walker; Pelerine, J. Popovits; Pianoforte agraffe, Behning & Diehl; Pipes, exhaust trap for steam, S. Conrow; Pipes, making cement lined, J. E. Halladay; Planing machine, I. F. Thompson; Planter, corn, F. Bolduc; Planter, potato, H. J. Kent; Plow, B. C. Bradley; Plow point and share, J. F. Herring; Plow, rotary, W. E. Bleeker; Plow, sulky, W. Starling; Plow gage wheel, Matteson & Williamson; Plows, sulky attachment for, T. Weaver; Press, copying, S. Seiden; Press for hay, cotton, etc., T. L. Robinson; Press, hay and cotton, E. T. Armstrong; Printing, plate or die for, J. Dickson; Pump and fire engine, A. Paget; Pump, ship, L. Egleson; Pump, siphon, H. Coll; Pump, steam siphon, H. Coll; Punching machine, metal, G. W. Vankirk; Purifier, middlings, Cole & Marpole; Railway signal, automatic, S. Nunamaker; Railway, removing snow, P. and J. H. Baker; Range, cooking, P. J. Ackerman; Rein guard, Levy & Christian; Rein holder, A. Applegate; Roofing, metallic, S. Taylor; Sash fastener, J. Park; Sawgumner, S. H. Vosburgh; Sawing machine, J. N. Voris; Sewing machine, E. D. Smith; Sewing machine braider, etc., S. A. Davis; Sewing machine case, F. R. Wolfinger; Sewing machine guide, W. Baglin; Sewing machine shuttle, R. Blake; Sewing machine table drawer, Anderson et al.; Sewing machine treadle, J. T. Jones; Sewing machine wax thread, E. E. Bean; Shawl strap, W. Roemer; Ship, etc., hull of, C. G. E. Hennig; Shoe leather board, etc., Moore & Rogers; Skates, O. Edwards; Spear, casing, F. J. Fox; Splide, G. Draper; Spoke-tenoning machine, G. M. Combs; Spoon, sheet metal, G. I. Mix; Stamping apparatus, J. I. Quaid; Steam brake, vacuum, J. C. Wightman; Swing, A. Panyard; Tap and faucet, M. Kreiss; Telegraph insulator, C. L. LeBaron; Thill coupling, E. P. Jandell; Tin from tin scrap, removing, H. W. Hauberg; Toy, L. Schultz; Trap, fly, Dickson & Cole; Trellis, house and garden, G. C. Setchell; Trunk lid stay, C. H. Parliament; Type cabinet, wood, T. C. Hacker; Valve for hydrants, stop, S. H. Brown; Valve, poppet, J. P. Flanders; Valve, stop, C. F. Murdock; Vehicle spring, W. H. Haskell; Vehicle spring, J. Smith; Vehicle sleighrunners, M. S. Brooks; Veterinary instruments, A. V. Ruef; Walls and ceilings, lining, W. Smith; Walls, plastering, P. G. Hubert; Water from the ocean, drawing, D. C. Spooner; Well tube point, F. Herington; Wheelwright machine, M. C. Buffington; Whips, manufacture of, Avery & Pratt; Windmill, D. Negrotto, Jr.

APPLICATIONS FOR EXTENSION.

Applications have been duly filed and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned:
30,685.—SEED DRILL.—H. Moore. Nov. 4.

EXTENSIONS GRANTED.

- 29,760.—HAMMER.—R. Boeklen.
26,785.—SEWING MACHINE.—D. Haskell.
29,789.—CULTIVATOR.—E. S. Huff.
29,790.—CATTLE TIE.—G. Hull.
29,816.—PRINTING PRESS.—J. E. Priest.

DESIGNS PATENTED.

- 7,634.—RUBBER OVERSHOE.—E. F. Bickford, Malden, Mass.
7,635.—CAP.—J. Harney, Brooklyn, N. Y.
7,636 to 7,646.—CARPETS.—O. Heingke, New Utrecht, N. Y.
7,647.—FUR JACKET.—M. Hillas, New York city.
7,648 to 7,661.—CARPETS.—H. Horan, East Orange, N. J.
7,662 to 7,669.—CARPETS.—L. G. Malkin, New York city.
7,670 to 7,674.—CARPETS.—E. J. Ney, Dracut, Mass.
7,675 to 7,679.—CARPETS.—H. Nordmann, New York city.
7,680.—CARPET.—G. W. Piggott, New York city.
7,681 to 7,684.—CARPETS.—W. H. Smith, Enfield, Conn.
7,685 to 7,687.—CARPETS.—J. H. Smith, Enfield, Conn.
7,688.—FLOW BEAM.—W. H. Wilder, Washington, D. C.
7,689 to 7,691.—CARPETS.—L. G. Malkin, New York city.
7,692 to 7,705.—CARPETS.—J. T. Webster, Phila, Pa.
7,706.—SPRINT HANDLE.—G. Wilkinson, Providence, R. I.
7,707.—SKIET.—J. W. Blackham, Brooklyn, N. Y.
7,708.—DRAWER PULL.—P. E. Guerin, New York city.

TRADE MARKS REGISTERED.

- 1,932.—BEER.—Cin. Bottled Beer Co., Cincinnati, O.
1,933.—IMPLEMENTS.—Keystone Manf. Co., Sterling, Ill.
1,934.—TOOTH CLEANSEK.—D. G. Strawn, Boston, Mass.
1,935.—GAS REGULATOR.—Ward & Co., St. Louis, Mo.
1,936.—WATERPROOF GARMENTS.—A. K. Young et al., Boston, Mass.
1,937 to 1,940.—WHISKIES.—Elias Block & Sons, Cin., O.
1,941.—WINES.—I. Bush & Co., St. Louis, Mo.
1,942.—WHISKY.—Hoffheimer Bros, Cincinnati, O.
1,943.—TWEED PIECES.—F. H. Mathes, West N. Brighton, N. Y.
1,944.—WHISKY.—Shields & Co., Cincinnati, O.

SCHEDULE OF PATENT FEES.

Table listing patent fees: On each Caveat, \$10; On each Trade Mark, \$25; On filing each application for a Patent (17 years), \$15; On issuing each original Patent, \$20; On appeal to Examiners-in-Chief, \$10; On appeal to Commissioner of Patents, \$20; On application for Reissue, \$30; On application for Extension of Patent, \$50; On granting the Extension, \$50; On filing a Disclaimer, \$10; On an application for Design (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 AUGUST 13 TO 22, 1874.

- 3,758.—G. W. Harrison, Lansing, Mich., U. S. Improvements on pitman connections, called "Harrison's Pitman Connection." Aug. 13, 1874.
3,759.—T. E. Mullins, Hopewell Corner, New Brunswick. Improvements on steam cooking apparatus, called "Mullins' Improved Family Steamer and Condenser." Aug. 13, 1874.
3,760.—J. W. Herington and J. W. Stoakes, Mill Point, Ont. Improvements on horse collars, called "Herington's Improved Horse Collar." Aug. 13, 1874.
3,761.—R. Christie, Hamilton, Wentworth, Ont. Improvements on reaping and mowing machines, called "Christie's Improved Tilter and Guard for Reaping and Mowing Machines." Aug. 13, 1874.
3,762.—J. N. Miller, Bellefontaine, Ohio, U. S. Improvements on shifting seat buggies or convertible carriages, called "Miller's Convertible Buggy." Aug. 13, 1874.
3,763.—H. E. Wells, Van Wert, Ohio, U. S. Improvements on lumber drying kilns, called "Wells' Lumber Drying Kilns." Aug. 13, 1874.
3,764.—R. Teats, Central City, Colorado, U. S. Improvements on furnaces for roasting ores, called "Teats' Ore Roasting Furnace." Aug. 15, 1874.
3,765.—S. S. White, Philadelphia, Pa., U. S., assignee of N. Stow, Binghamton, N. Y., U. S. Improvements on dental engines, called "S. S. White's Dental Engine." Aug. 13, 1874.
3,766.—W. Watson and D. Watson, Somerville, Middlesex county, Mass., U. S. Improvement on friction mechanism for loose pulleys or gears, called "The Watson Pulley Friction Clutch." August 22, 1874.
3,767.—W. Abercrombie, Hamilton, Ont. assignee of R. L. Greenlee, Chicago, Cook county, Ill., U. S. Improvements in sash and door clamps, called "Greenlee's Sash, Blind, and Door Clamp." August 22, 1874.
3,768.—P. Wallace, London, Middlesex county, Ont. Improvements on machines for making matches, called "Wallace's Self Feeding and Racking Match Making Machine." August 22, 1874.
3,769.—J. Spratt, Fer Emina, St. Martin's, Guernsey, Channel Islands, and now of London, England. Improvements on solidified tea, called "Spratt's Solidified Tea." August 22, 1874.
3,770.—H. Harmer, Southamton, Bence county, Ont. Improvements on the working of railway switches, called "The Safety Switch Guard." August 22, 1874.
3,771.—J. H. Cleveland, Buffalo, Erie county, N. Y., U. S. Improvements on tuckers for sewing machines, called "J. H. Cleveland's Tucker." August 22, 1874.
3,772.—C. F. Gardner, London, England, and E. Pocock, Paris, France. Improvements on machines for lasting the uppers of boots and shoes, called "Gardner & Pocock's Boot and Shoe Laster." August 22, 1874.
3,773.—G. S. Lacy, New York city, U. S. and U. C. Allen, Glen's Falls, Warren county, N. Y., U. S., assignees of A. C. Cronal, New York city, U. S. Improvements in gas regulators, called "Cronal's Improved Gas Regulator." August 22, 1874.
3,774.—H. Beauchamp, Montreal, Montreal Dist., P. Q. Ameliorations aux machines a laver, dite "La Laveuse a Valve de la Puissance." August 22, 1874.
3,775.—W. Franz, Bucyrus, Crawford county, O., U. S., & W. Pope, Crestline, Crawford county, O., U. S. Improvements on knitting machines, called "Franz & Pope's Improved Automatic Knitting Machine." August 22, 1874.

Advertisements.

Back Page - - - - - \$1.00 a line.
Inside Page - - - - - 75 cents a line.
Engravings may read advertisements at the same rate per line, by measurement, as the letter press. Advertisements must be received at publication office as early as Friday morning to appear in next issue.

WANTED—A second hand Lathe, suitable for turning Fishing Rods. Address, with full description, CHARLES F. ORVIS, Manufacturer of Fish Rods and Reels, Manchester, Vermont.

LAMB'S KNITTING MACHINE. It is the only Machine that can knit all sizes of work, and narrow and wide; that can shape and complete, without hand-finishing, seamless Hosiery, Gloves, and Mittens, or knit them in all sizes; of knit Ribbed, Double, and Fancy Knits, Shawls, Scarfs, etc. It knits over 25 different Garments. Over 100 per cent Profit in Manufacturing Knit Goods. The Farmer doubles the value of his Wool by converting it into Knit Goods. Women make \$5.00 a day with it. Agents wanted. Send stamp for samples of work, and reduced Price-List. Address, LAMB KNITTING MACHINE CO., at Chicopee Falls, Mass.; Cincinnati, O., or Chicago, Ill.

PATENT COMBINED LOOKING GLASS and Photographic Frame for Sale, either the entire United States or territory to suit purchasers, or given on royalty. Will sell on sight. For further information, address I. N. SHATTO, Newport, Ferry Co., Pa.

OVER 7,000 IN USE. BLAKE'S STEAM PUMP. Send for catalogue. GEO. F. BLAKE MFG CO., Boston, New York, Chicago, Ill.

CHEAP MUCILAGE, for Pasting Labels and U. S. Revenue Stamps on Beer Barrels, Segars, Tobacco, &c., for Trunks, Bookbinders and general use, in all quantities, for sale by L. FEUCHTWANGER & CO., 150 Fulton St., New York.

FOR SALE—Very low—An 80 H.P. Steam Engine, 18x36 in. Cylinder, with 8 tons band wheel 26 in. face, Governor, and all complete. Our own build but little used, in perfect order. Apply to TODD & RAFFERTY MACHINE CO., 10 Barclay St., New York.

IMPORTANT FOR ALL LARGE CORPORATIONS AND MANUFACTURING CONCERNS.—Buerk's Watchman's Time Detector, capable of controlling, with the utmost accuracy, the motion of a watchman or patrolman, as the same reaches different stations of his beat. Send for a Circular. J. E. BUEK, P. O. Box 1057, Boston, Mass. N. B.—This detector is covered by two U. S. Patents. Parties using or selling these instruments without authority from me will be dealt with according to law.